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REPORT
ON
PETROLEUM
AS AN
ILLUMINATOR,

AND THE ADVANTAGES AND PERILS WHICH ATTEND ITS USE; WITH
SPECIAL REFERENCE TO THE PREVENTION OF THE TRAFFIC
IN DANGEROUS KEROSENE AND NAPHTHA.

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EXTRACT FROM THE ANNUAL REPORT OF THE BOARD OF HEALTH OF THE HEALTH DEPARTMENT OF
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REPORT ON PETROLEUM OIL,

WITH SPECIAL REFERENCE TO THE PREVENTION OF THE TRAFFIC IN DANGEROUS KEROSENE AND NAPHTHA.

COL. EMMONS CLARK,

Secretary of the Health Department of the City of New York :

SIR—I have the honor to submit the accompanying report on petroleum oil, with special reference to the prevention of the traffic in dangerous kerosene and naphtha, in response to the following resolution of the Board of Health :

“ *Resolved*, That the Chemist of the Department be and is hereby directed to report in full on the subject of the traffic in dangerous kerosene, giving the advantages and disadvantages of the oil, and what action, if any, this Board can take to prevent the sale of dangerous illuminating fluids.”

REPORT.

Although petroleum has been known from time immemorial, and has been collected in considerable quantities in various parts of the world for ages, it was not until American enterprise, in 1859, successfully bored an artesian well, for the express purpose of procuring oil from the rocky strata below, that this cheap and beautiful illuminating oil became an important article of commerce.

The previous introduction of an oil very similar to petroleum in composition, but which was obtained by the destructive distillation of

various bituminous substances, such as cannel coals, asphaltums, and shales, had paved the way for petroleum, which came in at once as a cheaper and purer substitute for the artificial oils. In this country, at least, the manufacture of "coal and shale oil" is a thing of the past.

It is impossible to go back to the time when petroleum was first discovered; its occurrence in abundance in the form of springs of oil in many localities make it evident that it has always been known—certainly more than four thousand years.

The earliest evidence of the use of petroleum is found in the ruins of Nineveh and Babylon. In building both of those cities an asphaltic mortar ("slime" of the Old Testament) was employed, the asphalt for which was a partially evaporated petroleum. That used at Babylon was obtained from the springs of Is, on the Euphrates, which, at a later date, attracted the attention of Alexander, of Trajan, and of Julian; they, even to this day, supply the neighboring villages with oil.

Herodotus, 500 years before Christ, spoke of the oil wells of Zante; and Pliny and Dioscorides described the oil of Agrigentum, which was used in lamps under the name of "Sicilian oil."

In one of the Ionian Islands there is a spring which has yielded petroleum more than 2,000 years.

The wells of Armenia, on the banks of the Zaro, were formerly used for lighting the city of Genoa.

In Persia, near the Caspian Sea at Baku, numerous springs of petroleum have been known from the earliest times.

The springs of Rangoon, on the Irawaddi, have been worked for ages; before the general introduction of petroleum among civilized nations, the yield of the wells in this district is said to have been 400,000 hogsheads of oil per annum.

The perpetual fires burned at Pagan shrines are supposed to have been caused by springs of petroleum, ignited at the surface.

The American Indians collected petroleum, which was sold for various purposes, under the name of Seneca oil. But it seems probable now that, before the Indians, the race of people who worked the copper deposits of Lake Superior and lead ores of Lexington, Ky., and built the mounds in the Western States, also dug numerous wells in Pennsylvania, Ohio, and Canada, to collect the oil which flowed into them. These wells are known, from the trees now growing upon the earth

thrown out in making them, or growing in the wells themselves, to be from 500 to 1,000 years old. One of these, at Titusville, was found after it was cleared out to have been 27 feet deep and five or six feet in diameter, and to be cribbed up with logs to the top. In another, a notched tree was found still standing in the position in which it had been used as a ladder.

In 1819, oil was accidentally obtained in boring two salt wells on the Muskingum river, Ohio. It was used to a limited extent in workshops in the neighborhood, but did not prove a satisfactory substitute for the animal and vegetable oils in use, as the lamps suitable for burning it had not yet been invented. The oil was considered a great evil, on account of its interference with the manufacture of good salt.

In 1829, a flowing well was accidentally obtained at Burkesville, Kentucky, and for two or three weeks the oil flowed over the surface of the Cumberland river, and, becoming ignited, caused some apprehension of a general conflagration among the inhabitants of the towns and villages lower down on the river.

In 1836, from fifty to one hundred barrels of petroleum were collected annually in the valley of the Kanawa, and sold as a medicine.

It was not, however, till oil from coal and shale had been successfully introduced, with lamps specially adapted for this class of oils, that attention was directed to the petroleum springs as likely to furnish a cheap supply of material.

From the time of Hancock and Portlock, who in 1694 made "pitch, tar, and oyls" of a kind of stone, various persons, experts, have made investigations in coal and shale oil.

Selligie, in France, was the first to manufacture an oil (shale oil) on a large scale, and introduced it for lighting. He began his experiments as early as 1834, erecting three factories. He manufactured in the six years between 1838 and 1843, about fifteen thousand barrels (forty gallons each) of shale oil. Still the industry did not extend.

Abraham Gesner made oil from coal in Prince Edward's Island in 1846, and obtained patents, which were sold to the New York Kerosene Company.

In 1850, James Young, of Glasgow, Scotland, introduced paraffin oils, made from cannel coal.

This industry was very profitable, and rapidly extended. It was in-

troduced into Germany, the material being either the Boghead coal from Scotland, or the bituminous shales which abounded in the country.

In the United States, as early as 1850, Luther Atwood experimented on this class of oils, and succeeded in perfecting his "coup oil," made from coal-tar. This was manufactured as a lubricating oil in considerable quantities by Samuel Downer, of Boston.

In 1855 or '56, the Breckinridge coal of Kentucky was used as a material for making oil.

Trinidad pitch, chapopoti from Cuba, candle-tar, and various materials were used for making this oil, but it was found to be more economical to import the Boghead coal from Scotland than to use the cheaper but poorer materials found in this country. The only exception to this statement is the Albertite of Nova Scotia, which yielded larger quantities of oil than any other material; this was, however, monopolized by a single company.

The industry rapidly expanded, and on January 1, 1860, there were forty coal-oil factories on the Atlantic border, all of which used the Scotch Boghead coal, with the exception of two, where Albertite was employed. The total yield of the works amounted to 500 barrels per day, or 200,000 barrels per annum.

This industry was doomed to be very short-lived, for the wells of Pennsylvania yielded in 1860, 500,000 barrels of petroleum; in 1861, 2,000,000 barrels; and in 1862, 3,000,000 barrels. Not only were the coal-oil works at once changed to petroleum refineries, but new refineries were erected all over the country.

In 1854, the Pennsylvania Rock Oil Company had been formed for the purpose of collecting oil at Oil Creek, Pennsylvania,* but collecting the oil from the surface of ditches with blankets, and squeezing it into tubs, was found too expensive a process to compete with the coal-oil manufacture.

In 1858, however, Colonel G. L. Drake, the superintendent of the Company, began to bore an artesian well for oil, much to the amuse-

* The elaborate report of Professor B. Silliman, Jr., on the Petroleum of Venango County, made to this company in April, 1855, is extremely interesting, especially now that the industry has grown to such magnitude and importance. It was reprinted in full in the *American Chemist*, vol. 2, p. 18, July, 1871.

ment of his friends and neighbors, who considered the project most absurd. When, however, on the 26th of August, 1859, he "struck oil," at a depth of seventy-one feet, and obtained 400 gallons of oil a day, which sold for fifty-five cents per gallon, there was a great excitement. Every one who could leave his home rushed to the oil region, a forest of derricks soon appeared in the valley, and numerous wells were bored. Wells were also bored in West Virginia, Ohio, etc.

No mining enterprise had ever offered such sudden fortunes. A well costing a few thousand dollars might yield, in many cases, if successful, from 100 to 2,000 barrels of oil daily, with no expense for pumping.

The Noble well yielded, in a little more than one year, 500,000 barrels of oil. The Sherman flowed 450,000 barrels in about two years.

The poor farmers on Oil Creek, who could not previously have realized more than a few dollars per acre, suddenly found themselves wealthy. Single farms brought their owners from \$500,000 to \$1,000,000, with a royalty on the wells in addition, in some cases. One man received \$3,000 per day royalty from the wells on his farm, and thus accumulated \$600,000, all of which was soon squandered.

Without going further into details, I will give here the annual production of oil from the wells.

THE ANNUAL PRODUCTION OF PETROLEUM IN THE UNITED STATES.

Date.	Barrels.
1859.....	82,000
1860.....	500,000
1861.....	2,113,600
1862.....	3,056,606
1863.....	2,611,359
1864.....	2,116,182
1865.....	3,497,712
1866.....	3,597,527
1867.....	3,347,306
1868.....	3,715,741
1869.....	4,717,000
1870.....	6,500,000
Total	<hr/> 35,855,033

5,659,000 barrels of the oil produced in 1870 were obtained from Pennsylvania, the wells then numbering about 3,000; a large portion of this oil (just one half in 1870), was exported to Europe, Australia, Asia, and Africa.

There has thus been developed within the eleven years which have elapsed since the first oil well was bored by Col. Drake at Oil Creek, a most important industry, which exerts an influence on the most remote parts of the globe. It employs thousands of men, builds railroads, freights ships, and lights half the people in the civilized world. Eleven years ago the word petroleum or kerosene* was known only to the scholar or the scientist; now it appears in every newspaper, in the stock list, the price current, and far too often among the accidents and deaths.

It is evident that in framing laws to regulate so important a branch of industry, too careful a study of all the conditions of the traffic cannot be made. I feel justified, therefore, in devoting so much space to this historical and statistical sketch.

COMPOSITION OF PETROLEUM.

Crude Petroleum, as it comes from the wells in Pennsylvania, is generally a dark greenish-brown liquid, of a somewhat offensive odor, varying, in specific gravity or density, from 0.820 to 0.782, or 40° Beaumé to 48° B.† It is chiefly a mixture of a great number of hydrocarbons, compounds of carbon and hydrogen, the average proportion of the two elements in the mixture being:

Carbon.....	85
Hydrogen.....	15
	<hr/>
	100

* Kerosene was originally a trade mark of a single oil company, and is now used as synonymous with refined petroleum; it should be understood to be restricted to refined oil of about 42° to 48° B.

† Oils, differing from that which occurs so abundantly at Oil Creek, Penn., are obtained in more limited quantities at various localities, some of which are given in the following table:

LOCALITY.	GRAVITY, BEAUMÉ.	COLOR.
Oil Creek, Pennsylvania.....	43° to 47°	Greenish-brown.
Pit Hole Creek, Pennsylvania.....	49° to 57°	"
Alleghany River, ".....	34° to 39°	"
French Creek, ".....	28° to 31°	"
Burning Spring, West Virginia.....	42° to 43°	"
Enniskillen, Canada.....	42° to 43°	Blackish-brown.
Mecca, Ohio.....	26° to 28°	Yellow.
Amiano, Italy.....	25° to 50°	Red to straw.

These hydrocarbons differ from each other in volatility. Some are so volatile as to evaporate rapidly at ordinary temperatures, making it dangerous to approach an open tank of petroleum with a flame ; others are much less volatile, some requiring a temperature of 700° to 800° F. to vaporize them.

The volatility of these component hydrocarbons is intimately related to their specific gravity or weight, the lightest ones being the most volatile, while the heavier oils possess the higher boiling-points.

The inflammability of the oils is also intimately connected with the volatility and specific gravity. The light volatile oils ignite on the approach of a burning match, no matter how cold they may be, while the heavy, less volatile oils can only be ignited when they are heated above the ordinary temperature of the air.

The lighter oils in petroleum belong mostly to the group of hydrocarbons known as the hydrides of the alcohol radicals, or marsh gas series ; the heavier oils are believed to belong to the olefines, or ethylene series. Neither of the groups have been fully studied, and the exact constitution of the heavier portions of petroleum has yet to be determined.

Table I. shows the composition, boiling points, and gravities of some of the members of the first group, or marsh gas series.

Table II. shows the composition, boiling points, and gravities of the members of the olefines, or ethylene series.

The first or lowest members of each series are gases at ordinary temperatures ; the intermediate members, liquids ; the highest members, solids.

TABLE I.

The Hydrides of the Alcoholic radicals, or Marsh Gas Series of Hydrocarbons

NAMES.	FORMULÆ	CARBON.	HYDRO- GEN.	BOILING POINTS.	SPECIFIC GRAVITY.	DENSITY BEAUMÉ
Marsh Gas.....	C ₂ H ₄	75.00	25.00	A gas.		
Hydride of Ethyl.....	C ₄ H ₆	80.00	20.00	A gas.		
Hydride of Propyl.....	C ₆ H ₈	81.81	18.19	A gas.		
Hydride of Butyl.....	C ₈ H ₁₀	82.80	17.20	34°F.	0.600	106°
Hydride of Amyl.....	C ₁₀ H ₁₂	83.33	16.67	86°	0.628	98°
Hydride of Hexyl.....	C ₁₂ H ₁₄	83.72	16.28	154°	0.669	86°.5
Hydride of Heptyl.....	C ₁₄ H ₁₆	84.	16.00	200°	0.699	72°
Hydride of Octyl.....	C ₁₆ H ₁₈	84.21	15.79	242°	0.726	64°.5
Hydride of Nonyl.....	C ₁₈ H ₂₀	84.38	15.62	278°	0.741	60°.5
Hydride of Decatyl.....	C ₂₀ H ₂₂	84.51	15.49	321°	0.757	56°.5
Hydride of Endecatyl.....	C ₂₂ H ₂₄	84.61	15.39	360°	0.765	54°.5
Hydride of Dodecatyl.....	C ₂₄ H ₂₆	84.70	15.30	388°	0.776	52°
Hydride of Tridecatyl.....	C ₂₆ H ₂₈	84.78	15.22	422°	0.792	48°
Hydride of Tetradecatyl ...	C ₂₈ H ₃₀	84.85	15.15	460°		
Hydride of Pentadecatyl...	C ₃₀ H ₃₂	84.90	15.10	496°		
	* * *					
	C ₃₆ H ₃₆	85.04	14.96			
	* * *					
	C ₄₀ H ₄₂	85.11	14.89			
	* * *					
	C ₄₆ H ₄₈	85.18	14.82			
	* * *					
	C ₅₀ H ₅₂	85.23	14.87			
	* * *					
Paraffin	C ₅₄ H ₅₆	85.26	14.74	Solid.		31°.5
	* * *					
Paraffin	C ₆₀ H ₆₂	85.31	14.69	698°F.		

TABLE II.

The Olefines or Ethylene Series of Hydrocarbons.

COMPOSITION—CARBON, 85.71 PER CENT.; HYDROGEN, 14.29 PER CENT.

NAMES.	FORMULÆ	BOILING POINTS.	SPECIFIC GRAVITY.	DENSITY BEAUMÉ
Ethylene.....	C ₄ H ₄	Gas.		
Propylene.....	C ₆ H ₆	0° F		
Butylene.....	C ₈ H ₈	37°.4		
Anylene	C ₁₀ H ₁₀	95°		
Hexylene.....	C ₁₂ H ₁₂	156°		
Heptylene	C ₁₄ H ₁₄	203°		
Octylene.....	C ₁₆ H ₁₆	240°		
Nonylene.....	C ₁₈ H ₁₈	284°		
Decatylene.....	C ₂₀ H ₂₀	320°		
Endecatylene.....	C ₂₂ H ₂₂	384°	0.782	50°
Dodecatylene.....	C ₂₄ H ₂₄	421°		
Decatritylene.....	C ₂₆ H ₂₆ * *	455°	0.791	48°
Cetene.....	C ₃₂ H ₃₂ * *	527°		
	C ₄₀ H ₄₀ * *			
Cerotene.....	C ₅₄ H ₅₄ * *		Solid.	Solid.
Melene.....	C ₆₀ H ₆₀	707°	Solid.	Solid.

REFINING PETROLEUM.

The dark offensive petroleum is subjected to a process of refining in order to separate from the portion designed for burning in lamps,

First—The lighter oils, which are very inflammable, and, owing to their volatility, evolve vapors at ordinary temperatures which, when mixed with the proper proportions of air, constitute explosive mixtures.

Second—The heavier oils, which do not burn well in lamps, but are excellent lubricators. From these oils is obtained, by chilling and pressing, the solid paraffin which is used for candles, for waterproofing cloth, etc.

Third—The tarry matter which would crust the wicks of the lamps.

Fourth—The coloring matter.

Fifth—The compounds which cause the offensive odors of the crude oil.

Refining, as usually practised, involves three successive operations :

First—Fractional distillation.

Second—Agitation with sulphuric acid.

Third—Agitation with hydrate of soda or ammonia.

A few refiners improve the quality of their refined oil by redistilling it after the treatment with acid and alkali.

Fractional Distillation.—The apparatus employed consists of an iron still, provided with a coil or worm of wrought-iron pipe, which is submerged in a tank of water, for the purpose of cooling it. When the still has been filled with crude oil the fire is lighted beneath it, and soon the oil begins to boil. The first products of distillation are gases ; at ordinary temperature they pass through the coil and escape without being condensed. By cooling the oil with ice or by compressing these gases by an air-pump into a strong receiver, very volatile liquids called “rhigolene” and “cymogeme” are obtained.

Soon the vapors begin to condense in the worm, and a stream of oil trickles from the far end of the coil into the receiving tank. The first oils obtained have a gravity of about 95° Beaumé ; as the distillation proceeds the product becomes heavier, 90° B., 85° B., 80° B., 75° B., 70° B., and so on.

In most establishments it is customary to run the product into one tank till the gravity reaches 65° B. to 59° B. ; the product known as

crude naphtha, being subsequently separated by redistillation into (1) gasolene, the lightest; (2) naphtha; (3) benzine. When the stream of oil runs from the coil with a gravity from 65° to 59° B., it is diverted into the kerosene tank and continues to run into this receiver till the gravity reaches about 38° B., or until the color deepens to a yellow. This second fraction is the burning oil or kerosene, and is subsequently purified by sulphuric acid and alkali.

After taking off the burning oil, the stream is directed to the paraffin oil tanks, and continues to run there till nothing remains in the still save coke. The last products have a gravity of about 25° B.

This oil is chilled to crystallize the paraffin, and is then folded in cloths and exposed to hydraulic pressure to squeeze out the oil. The solid paraffin is purified by repeatedly melting it in naphtha, chilling, and pressing. The oil separated from it is purified with sulphuric acid and alkali and used for lubricating purposes.

The following table will give a clear idea of the fractional distillation, and its various products :

Products of the Distillation of Crude Petroleum.

PRICE IN BULK, 14 CENTS PER GALLON.

Gravity, Beaumé.	Name.	Percentage yielded.	Gravity, Beaumé.		Price per gallon.	
					In bulk.	Retail.
Gases.				Uncondensed, Loss.		
115° B. to 105° B.	{ Cymogene . . . . .	.....	110°	{ Condensed by pump, made by one firm only for an ice machine, boils at 32° F. }	\$1 50	
105° B. to 95° B.	{ Rhigolene . . . . .	.....	100°	{ Condensed by ice and salt, used as an anæsthetic, boils at 65° F. }	\$1 00	
95° B. to 80° B.	{ Gasolene	1½	85° to 90°	{ Condensed in worm by cold water, used in "air gas machines" and gas "carbonizers." }	35 cts. to 18 cts.	
80° B. to 65° B.	{ Naphtha	10	71° to 76°	{ For oil cloths, cleaning, etc.; so- called "Safety oil," "Danforth's oil," "American Safety Gas," etc.; for adulterating kerosene; cleaning oil wells. }	7 cts. to 5 cts.	12 cts. to 20 cts.
65° B. to 60° B.	{ Benzine	4	62° to 65°	For paints and varnishes	16 cts. to 12 cts.	20 cts. to 16 cts.
60° B. to 38° B.	{ Kerosene or Refined Petroleum. }	55	46°	Ordinary oil for lamps	20 cts. to 25 cts.	30 cts. to 40 cts.
38° B. to 25° B.	{ Paraffin oil	19½	30°	{ Semi-solid when cold. Chilled and pressed to separate paraffin, oil used for lubricating }	18 cts. to 14 cts.	
	Coke, Gas, & loss	10				
	Total	100				

While this is a general outline of the process of distillation, it should be remarked that refiners differ in the details of the operation.

When very large stills are employed, of a capacity from one thousand to thirty-five hundred barrels, the distillation is not continued till coke is formed; but is interrupted when there remains in the still a thick tarry residuum amounting to from five to ten per cent. of the original oil. This residuum is afterwards distilled to coke in smaller stills.

By slow distillation in high stills the heavier oils are "cracked" into lighter oils, so that the refiner need not produce any heavy oil. In many of the largest establishments only three products are obtained from crude oil:

1. Crude naphtha.
2. Burning oil.
3. Residuum.

The *burning oil* is deodorized and bleached for market with sulphuric acid and alkali; the *crude naphtha* is sold for from 3 to 5 cents per gallon, and poured down the oil wells, nominally *to clean them*, but practically to be sold to the refiner again in the crude oil at 14 cents per gallon; or it is sold to be redistilled for gasolene, refined naphtha, and benzine. The well owners are many of them dishonest enough to pour the naphtha into the crude oil tank. The adulteration averages fifteen per cent. The residuum is sold to be distilled for paraffin and lubricating oil, or it is cracked in high stills, and the product put into the large stills with the crude oil. In this case no lubricating oil or paraffin are manufactured. This is the practice at Cleveland and Pittsburg. Some redistil the last ten per cent., the colored portions of the burning oil, with the crude oil.

Some place the crude petroleum in large stills and blow steam through it, and thus take off the crude naphtha, before the oil is run into the fire still.

Some manufacturers who pride themselves upon the superior quality of their special brands of oil, separate certain portions of the distillate, and send them to market as unusually safe oils.

The "*Astral Oil*" is probably the oil which runs from about 54° to 44° B., in other words, the "heart" of the burning oil. As it does not contain the lighter portions of the ordinary oil, its flashing point is 125° F., or 25° above the standard of safety, although its average

gravity is 49° B. The "*Mineral Sperm*" is a heavy oil, which probably runs between 40° B. and 32° B., averaging 36° B. This is so heavy, and requires so high a temperature to volatilize it, that it does not evolve an inflammable vapor below 262° F., nor take fire below 300° F. Practically it is as safe as whale oil.

Treatment with Acid.—After the oil has been fractioned it is subjected to the action of sulphuric acid to remove a little color, but more particularly to *sweeten* it, *i. e.*, to remove the disagreeable odor which it still retains. About two per cent., by measure, of acid is poured into the oil, the mixture is thoroughly agitated, and, on standing, a dark tarry sediment separates; this is removed, and the clear oil is then agitated with water, then with alkali, either caustic soda or ammonia. This neutralizes the last traces of acid and, after removal by water, leaves the oil "*sweet*." Some of the more careful refiners then subject it to a somewhat elevated temperature to expel a small percentage of naphtha or benzine which it still contains.

Why most of the Kerosene in the Market is unsafe.—The crude naphtha sells at from three to five cents per gallon, while the refined petroleum or kerosene sells for twenty to twenty-five cents. As great competition exists among the refiners, there is a strong inducement to turn the heavier portions of the naphtha into the kerosene tank, so as to get for it the price of kerosene. They change the direction of the stream from the coil of the still when it reaches 65° to 63° B., instead of waiting till it reaches 58° . Thus the highly volatile explosive naphtha or benzine is allowed to run into the kerosene, rendering the whole highly dangerous. Dr. D. B. White, President of the Board of Health of New Orleans, found that, experimenting on an oil which flashed at 113° F., an addition of

One per cent.	of	naphtha	caused	it	to	flash	at	.....	103°	F.
Two	"	"	"	"	"	"	"	.....	92°	
Five	"	"	"	"	"	"	"	.....	83°	
Ten	"	"	"	"	"	"	"	.....	59°	
Twenty	"	"	"	"	"	"	"	.....	40°	

After the addition of twenty per cent. of naphtha, the oil *burned* at 50° F.

It is, therefore, the cupidity of the refiner that leads him to run as

much benzine as possible into the kerosene, regardless of the frightful consequences which result from the frequent explosions.

On every gallon of naphtha run into the kerosene tank there is a profit to the refiner of twenty cents, or on every per cent. of naphtha added to the kerosene a reduction of one fifth cent per gallon in the cost of production, which, with kerosene at twenty-five cents per gallon, amounts to one and one-fourth per cent. For every gallon of naphtha sold as kerosene, the refiner can afford to throw away four gallons. Nothing is more desirable than the discovery of some use to which the naphtha can be put, which will make such a demand for it as to raise its value above that of kerosene, that it might be the interest of the refiner to separate as much instead of as little as possible. It must not be supposed that the specific gravity of the oil can be considered a safe index of its quality; on the contrary, the specific gravity gives very little idea of the quality, for while naphtha tends to render the oil lighter, the average gravity of good oil is maintained by the heavier oils present. A poor, dangerous oil may be heavier than a safe oil.

The *Astral Oil* illustrates this fact; while it does not flash below 125° F., its gravity is 49° B.

Ordinary kerosene flashes at 86° F., but has a gravity of 47° B.

THE CHEAPEST PROCESS FOR MAKING A SAFE OIL.

The cheapest process for making an oil that will not flash, that is, emit an inflammable vapor, below 100° F., is the following:

(1) Run off the naphtha down to 58° B., instead of 65° to 62°, the usual point.

(2) Then expose the oil in shallow tanks to the sun or diffused daylight for one or two days.

The increased expense of this plan of refining would not reach more than three or four cents per gallon. This addition would be cheerfully paid by the consumer, to insure himself and his wife and children from a horrible death.

But, the refiner says, I cannot get the advanced price because the consumer does not know my oil is safer than the cheaper article. This is true, and our only hope is in strict laws, rigidly enforced, which will make it a crime to sell an unsafe oil.

THE YIELD OF DIFFERENT PRODUCTS.

The yield of the different products from crude petroleum varies greatly in different refineries. The following is a fair average for Pennsylvania oil of about 45° B.:

Gasolene.....	11½
Refined naphtha.....	10
Benzine.....	4
Refined petroleum or kerosene.....	55
Lubricating oil.....	17½
Paraffin.....	2
Loss, gas, and coke.....	10
	<hr/>
	100

By cracking, the same oil could be made to yield:

Crude naphtha.....	20
Burning oil.....	66
Coke and loss.....	14
	<hr/>
	100

ADVANTAGES OF PETROLEUM.

The great advantages of petroleum, which led to so sudden a revolution in the system of artificial illumination all over the world, causing the old lamps designed for whale, sperm, and vegetable oils and for camphene to be thrown aside and to be replaced by the new lamps, are the cheapness of this oil, the brilliancy of the light, and the freedom of the flame from smoke.

Although the first oil was struck in Colonel Drake's well on Oil Creek as recently as August 28, 1859, or only eleven years ago, the average *daily* production in the United States has now reached the enormous amount of 22,000 barrels of over forty gallons each.

The wells on Oil Creek now run more oil in a fortnight than was captured per annum by the entire fleet of six hundred vessels which sailed from Nantucket, New Bedford, Stonington, New London, and Providence in the palmiest days of the whale fishery.

The results of a series of experiments made by Dr. J. G. Pohle, E. G. Kelly, and the writer, a committee of judges for the American Institute Fair, is plainly not out of place here, as giving an exact basis for a comparison of kerosene oil with other illuminating materials.

The standard of comparison is a sperin candle which burns two grains per minute, or 120 grains per hour. The oils tested were entered for competition, and are the safest oils in the market, as is shown by the following statement of their flashing and burning points :

	Specific Gravity. Degrees Beaumé.	Flashing Point. Inflammable vapor evolved.	Burning Point. Oil takes fire.
Required by Board of Health ordinance .....	.....	100° F.	110° F.
Standard Kerosene.....	46° B.	115°	128°
Astral Oil.....	49°	125°	138°
Mineral Sperin.....	36°	262°	300°

The “*Standard Kerosene*” and “*Astral Oil*” are superior varieties of *kerosene*. The “*Mineral Sperin*” is a much heavier oil and is not what is generally known as *kerosene*. It is not well adapted for flat wick lamps, as, when the level of the oil in the reservoir of the lamp is two or three inches below the flame, the oil is not readily drawn up by the flat wicks. In argand burners, which have a circular wick, and in which the reservoir is placed at one side so high that the oil is brought near the level of the flame, the supply is maintained and the flame retains its original size and brilliancy as long as there is any oil in the lamp.

The following table shows the rate of consumption and illuminating power of these oils :

Rate of Consumption and Illuminating Power of Petroleum Oils.

NAME OF THE OIL.	Hours required to burn one gallon of oil.	Average candle-power of the flame.	Pounds of candles equivalent to one gallon of oil.	Hours required to burn one gallon at rate of eight candles power.
<i>I. Low glass lamp, $\frac{3}{8}$-inch flat wick—</i>				
Standard kerosene.....	200	4.26	14.54	106.5
Astral oil	179.5	4.77	14.67	107
<i>II. High glass lamp, $\frac{5}{8}$-inch flat wick—</i>				
Standard kerosene.....	109	8.9	16.6	121
Astral oil	112	7.7	14.38	108
<i>III. German student lamp, argand, circular wick—</i>				
Standard kerosene.....	69	14.7	17.44	127
Astral oil	81.6	11.1	15.57	113
Mineral sperm	90	11.6	17.85	130
<i>IV. Merrill's patent lamp, argand, circular wick—</i>				
Standard kerosene.....	94.5	12	19.38	142
Astral oil	102.5	11.47	20.17	147
Mineral sperm	105.5	11.83	21.14	156

From these figures it appears that in lamps of the sizes generally used, the illuminating power of the kerosene flame is equal to from eight to nine sperm candles, with the flat wick, and to from eleven to fifteen candles, with the round wick, and that a gallon of oil lasts from 70 to 109 hours in such lamps, and gives an amount of light equivalent to that which is afforded by from $14\frac{1}{2}$ to 20 pounds of sperm candles.

The heavy *Mineral Sperm* oil adds to the advantage of a degree of safety almost equal, in fact practically equal, to whale oil, that of giving an amount of light equal to about $21\frac{1}{2}$ lbs. sperm candles.

The ordinary gas burner, burning five feet of gas per hour, gives, if the gas is of good quality, a light equal to 16 candles.

From these figures it follows, therefore, that

One gallon *Standard Kerosene* is equivalent, at 40 cents per gallon, to,

In flat wick lamp,	302 feet gas, costing.....	\$0.91
German student lamp, 317	“ “	0.95
Merrill's lamp, 355	“ “	1.06
Average, 325	“ “	0.97

One gallon *Astral Oil* is equivalent, at 50 cents per gallon, to,

In flat wick lamp,	295 feet gas, costing.....	\$0.88
German student lamp, 282	“ “	0.85
Merrill's lamp, 367	“ “	1.10
Average, 315	“ “	0.94

One gallon of *Mineral Sperm* is equivalent, at 75 cents per gallon, to,

In German student lamp, 325 feet gas, costing.....	\$0.97
Merrill's lamp, 390 " "	1.17
Average, 358 " "	1.07

One thousand feet, sixteen-candle gas, costing \$3.00, is equivalent to

3.25 gallons common kerosene, flashing at 86° F., costing, at 30 cts. per gal....	\$0.97
3.08 “ standard “ “ 115° F., “ 40 “	1.23
3.17 “ Astral oil, “ 125° F., “ 50 “	1.58
2.80 “ Mineral sperm, “ 262° F., “ 75 “	2.10

The average cost per hour of light equal to eight sperm candles is,

From sperm candles, at 42 cents per pound.....	5 $\frac{76}{100}$ cents.
Gas, at \$3 per 1000 feet.....	0 $\frac{75}{100}$ “
Mineral sperm oil, in German student lamp, at 75 cents per gallon..	0 $\frac{57}{100}$ “
“ “ Merrill's “ “ “ “ ..	0 $\frac{48}{100}$ “
Astral oil, flat wick “ 50 “ “ ..	0 $\frac{46}{100}$ “
“ German student “ “ “ “ ..	0 $\frac{44}{100}$ “
“ Merrill's “ “ “ “ ..	0 $\frac{34}{100}$ “
Standard kerosene, in flat wick “ 40 “ “ ..	0 $\frac{33}{100}$ “
“ German student “ “ “ “ ..	0 $\frac{31}{100}$ “
“ Merrill's “ “ “ “ ..	0 $\frac{28}{100}$ “
Common kerosene, unsafe, in flat wick lamp 30 “ “ ..	0 $\frac{27}{100}$ “

In addition to the advantages of economy, brilliancy, cleanliness, and absence of smoke, it should be mentioned that kerosene never freezes, and never becomes rancid. The only real objection, but, nevertheless, a most serious objection, raised against kerosene, is the

danger arising from its inflammability, and the combustible vapors which are evolved at ordinary temperatures by most of the oils in common use.

The oils used in the experiments above narrated do not belong to this class; they are perfectly safe, and we shall show that every refiner has it in his power to manufacture a safe oil at an expense of not over three to five cents per gallon more than it costs him to make the dangerous oil now generally sold. It is, moreover, shown in the last table, that the difference in the cost of the same amount of light when obtained from safe or unsafe oils, burned in flat wick lamps, between "standard kerosene," which flashes at 115° F., and is safe, and common oil which flashes at 86° F. (the average of the unsafe oils sold in New York), is only six one-hundredths of a cent per hour, or one cent for sixteen hours.

Certainly an illuminating material which gives, in a cheap lamp, an amount of light equal to that of eight sperm candles, at a cost of one third of a cent an hour is an inestimable boon to the world. It adds several hours to the length of the day, and enables the working-classes to devote the long evenings to the improvement of their minds by reading; or where the labors of the day must be prolonged into the night, it saves the eyes from the inevitable ruin which would follow the use of insufficient light. The sanitary advantages of a clear, smokeless light are inestimable. Without attempting to follow out all the good influences which may be attributed to the new illuminating material, it is safe to say that petroleum is one of the great civilizing agents of the nineteenth century.

NAPHTHA AND BENZINE UNDER FALSE NAMES.

Processes have been patented, and vendors have sold rights throughout the country for patented and secret processes for rendering gasoline, naphtha, and benzine non-explosive.

Thus treated, these explosive oils, just as explosive as before the treatment, are sold throughout the country under trade names, such as "Liquid Gas," "Aurora Oil," "Safety Gas," "Petrolene," "Purolene," "Black Diamond," "Septoline," "Anchor Oil," "Sunlight Non-explosive Burning Fluid," etc., etc. These processes are not only totally ineffective, but they are ridiculous; roots, gums, barks, and salts are turned indiscriminately into the benzine, to leave it just as explosive as before.

In the patent-office report for 1866 are fourteen such patents for "burning fluids," a few of which are quoted by way of illustration:

No. 57,095.—Gasolene, 40 gallons; gum olibanum, 1 pound; cascarilla bark, $\frac{1}{2}$ pound; lichen, $\frac{1}{2}$ pound.

No. 57,390.—White-oak bark, 2 pounds; alkinet root, 2 pounds; salt, 2 pounds; alcohol, 1 pint; cyanide of potassium, 1 ounce. To be added to 3 gallons naphtha to make it non-explosive.

No. 57,749.—Naphtha, 40 gallons; carbonate of soda, 3 pounds; alum, 2 pounds; hydrate of lime, 2 pounds; slippery elm, 2 pounds; gum camphor, $\frac{1}{2}$ pound; oil of sassafras, 4 ounces; essence of tar, 1 ounce.

No. 58,180.—Naphtha, 40 gallons; potatoes, 50 pounds; lime, 4 pounds; sal soda, 4 pounds; curcuma, 3 pounds.

No. 58,905.—Gasolene, 40 gallons; sal soda and cream of tartar, one pound each, to make the oil safe. Oil of winter-green to remove unpleasant odor.

No. 59,797.—Gasolene, 40 gallons; sulphur, 5 pounds; rusty iron, 100 pounds; onions, 1 bushel; rosin, 5 pounds.


No. 60,559.—Naphtha, 40 gallons; caustic soda, 1 pound; alum, 1 pound; salt, 1 pound; manganese, 1 ounce; water, 4 ounces.

The following is a copy of the printed license to manufacture "Sun-light oil," one of these murderous frauds. It is sold to single families at two dollars each. The likeness of Madam Culver is omitted here, and the type is set on a narrower page; the text is, however, exactly copied.

Recipe and Directions for Manufacturing the Sun-Light Oil

"To make one gallon, take 3 quarts of Benzine, 1 oz. of pulverized Alum, $1\frac{1}{2}$ ozs."
 "Alcohol, 2 ozs. Cream Tartar, 2 ozs. Sal Soda, 1 pint of potatoes, (cut fine,) 2 table-"
 "spoonsful of fine Salt, 2 drachms Oil of Sassafras, 4 drachms Gum Camphor. Dissolve"
 "the Alum in the Alcohol as much as possible, then add the Gum Camphor, stir for a few"
 "minutes, then add to one pint of the Benzine; stir it well for ten minutes, then add all"
 "the other ingredients except the Benzine; then add the remainder of the Benzine; leave"
 "it open and exposed to the air for about fifteen minutes, then cork or cover it tight, and"
 "in two hours' time it will be fit for use, although it should stand, if convenient, for"
 "forty-eight hours before using. This is the proportion for one gallon, and the person"
 "who purchases the ingredients of a retail druggist for a single gallon will be charged two"
 "or three times the wholesale price for a single gallon of Benzine, as many retail drug-"
 "gists often buy but a few gallons at a time and have to pay about twice the wholesale"

“price. You are to use Benzine of 65 or 72 gravity, which costs but $12\frac{1}{2}$ cents per gallon”
 “in New York, Chicago or Cleveland, and but 8 cents in Pittsburg.”

“The ingredients used in one gallon will answer for ten gallons by adding $8\frac{1}{2}$ gallons of”
 “Benzine, one quart Potatoes and one pint fine salt. The Sun-Light Oil should always”
 “be used with a patent or Sun-Light Burner.  Any individual detected making or”
 “selling the Sun-Light Oil without a right from us will be prosecuted as an infringer.”

“(Not transferable.) Beware of Counterfeits.—No Right genuine unless it has upon”
 “the upper left hand corner the likeness of Madame Culver, wife of the late Dr. S. A.”
 “Culver, the inventor of this Oil.”

The following circular is used to secure agents and purchasers for this villanous fluid :

“THE SUN-LIGHT OIL.”

“THE BEST BURNING OIL IN THE WORLD.”

“*Dr. Culver's Celebrated Sun-Light Oil is one of the Greatest Discoveries of the Age.*”

“*M. Wagner & Co. are Sole Proprietors for the United States and*”

“*Canadas. Sold only by their Authorized Agents.*”

“COSTS BUT TWENTY-EIGHT CENTS PER GALLON TO MANUFACTURE,”

“And can be manufactured anywhere in the United States and Canadas.”

“This wonderful oil, which is about to take the place of kerosene and other burning”
 “fluids, is composed of materials which can be obtained in any country village. Can be”
 “made without the aid of machinery, by simply mixing the ingredients together. It”
 “has no offensive smell whatever, and is”

“WARRANTED TO BE NON-EXPLOSIVE.”

“It burns without any smoke, and gives a softer and far more brilliant light than any”
 “other oil now in use, and is only equaled in brilliancy by gas-light. The ingredients”
 “which compose it are simple and cheap, costing but twenty-eight cents per gallon at the”
 “highest, and can be procured in any city or country village in the United States. A”
 “gallon of the oil can be made in five minutes, and a whole barrel in less than half an”
 “hour. Wherever it has been introduced it takes the place of kerosene and other”
 “burning fluids, for the following reasons :”

“1. Because it does not cost half as much ; 2. It can be made anywhere by anybody ;”
 “3. *It will never explode ;* 4. *It will burn in any lamp, with or without a chimney ;* 5. ”
 “It will not smoke the chimney ; 6. It will give no bad odor or offensive smell ; 7. ”
 “It will not soil clothes, if spilled upon them ; 8. It gives a clear and steady light, ”
 “never flickers, and in softness and brilliancy is only equaled by gas ; 9. It will ”
 “burn one fourth longer than the best kerosene made ; 10. It does not weaken the ”
 “eyes or lungs, as kerosene or coal oil does, by continued use. And, finally, it is ”
 “cheaper and better in every respect than any other oil ever invented.”

“For lighting stores, hotels, and public places of all kinds, there is no oil that will at”
 “all compare with this in cheapness, brilliancy, and safety. For night lamps in hotels,”

“public and private houses, it is invaluable, and can be used in small lamps as well as”
 “large ones, without chimney, giving out no smoke or smell, and does not encrust the”
 “wick.”

“Although this oil has been before the public but a few months, *nearly 350,000 families*”
 “*are making and using it.* And wherever it has been introduced, kerosene and other”
 “burning fluids have been laid aside. This celebrated oil was discovered and first in-”
 “vented in June, 1867, by the great French chemist and geologist, the late Dr. S. A.”
 “Culver, of Paris. *Fortunately for us, being near relatives of his, we succeeded, before his*”
 “*death, in obtaining the sole right to manufacture and sell the oil in all parts of the United*”
 “*States and Canadas.*”

“In order to bring this oil into universal use throughout the country, we have con-”
 “cluded to sell it only through agents. By this method families can manufacture the oil”
 “themselves, thus getting it at original cost and saving all the profits that would be made”
 “by merchants and speculators, if sold through them. The oil can be manufactured”
 “anywhere for twenty-eight cents per gallon, and in many places for much less. And”
 “while the cost is small, you have a light with which you can always feel safe, for it can”
 “in no way be made to explode; and the softness and brilliancy of the light will render”
 “cheerful the kitchen, the parlor, and the place of business. It gives a clear and steady”
 “light; and one gallon, with the same lamp and the same sized blaze, will burn six and”
 “one-quarter hours longer than the best kerosene. It is certainly”

“ONE OF THE GREATEST WONDERS OF THE AGE.”

“All we ask is, that the public give this oil a general investigation; that they test its”
 “merits and its qualities for themselves, and then, finding (as they surely will) that it is”
 “laden with results that will be beneficial to all persons in every city, village, and”
 “farm-house in our land, we respectfully ask that they lend their influence in our behalf”
 “to aid in its advancement and circulation.”

“Such a demand is there for this oil, that some of our agents, who are energetic, are”
 “now making, on an average, from \$400 to \$500 per month, clear of all expenses,”
 “and the demand for it is constantly increasing. We shall endeavor to establish at least”
 “one agent in every county in the United States and Canadas; and the right to manu-”
 “facture can only be obtained from him or from us. Again we remark, that all we de-”
 “sire is that every family test the merits of this wonderful oil, which they can do when”
 “the agent calls; and after they have thoroughly tested its qualities, it would be but”
 “waste of time and breath for the agent, or for us, to ask them to purchase the right”
 “to manufacture their own oil, for there is not one family out of every thousand but”
 “that would have the right to manufacture the oil, even if the price of a Family”
 “Right were five times as high as we have placed it. In order that all may be benefited”
 “by this oil, and none, however poor they may be, need be prevented from using it”
 “and enjoying its benefits, we have placed the price of Family Rights at the small sum”
 “of two dollars each.”

“*Agents Wanted in every County not yet Taken.*”

“If further information is desired, address, with stamp,”

“M. WAGNER & CO.,”

“Marshall, Mich.”

No wonder we have kerosene accidents, with agents scattered through the country selling county rights, and teaching retail dealers how to make these murderous "non-explosive" oils.

The experiments these venders make to deceive their dupes are very convincing. None of the petroleum products are explosive *per se*; nor are their vapors explosive under all circumstances when mixed with air. A certain ratio of air to vapor is necessary to make an explosive mixture. That this is true is proved by the air gas machines, which are simply contrivances designed to saturate air with gasolene or benzine vapor, when it burns like ordinary coal gas.

Equal volumes of vapor and air will not explode; three parts of air and one of vapor give a vigorous puff when ignited in a vessel. Five volumes of air to one of vapor give a loud report. The maximum degree of violence results from the explosion of eight or nine parts of air mixed with one of vapor.

It requires considerable skill to make AT WILL an explosive mixture with air and naphtha, and it is consequently very easy for the vender NOT TO MAKE ONE.

In most cases the proportion of vapor is too great, and on bringing a flame in contact with the mixture it burns quietly. The vender to make his oil appear non-explosive, unscrews the wick tube and applies a match, when the vapor in the lamp quietly takes fire and burns without explosion.

Or he pours some of the "safety oil" into a saucer and lights it. There is no explosion, and ignorant persons, biassed by the saving of a few cents per gallon, purchase the most dangerous oils in the market.

It is not possible to make gasolene, naphtha, or benzine safe by any addition that can be made to it. Nor is any oil safe that can be set on fire at the ordinary temperature of the air.

The sale of these explosive oils under false names has largely increased. Two years ago we knew of only one wholesale dealer in this city, G. L. Smith & Co., of No. 120 Maiden lane and No. 40 East Broadway.

This firm supplied "Liquid Safety Gas" at wholesale and retail, stating it to be non-explosive.

Recently other establishments have been opened, prominent among

which is that of G. M. Danforth & Co., principal office, No. 953 Broadway.

The character of this oil, which is simply benzine of 68° B., is clearly shown by the following accidents which it has occasioned :

“SYRACUSE, N. Y., November 11, 1870.

“About 4 o’clock on the morning of November 2, there being sickness in my family, I got up and lighted a lamp containing what was represented to me to be ‘Danforth’s Non-Explosive Petroleum Fluid.’ I returned to bed a few minutes after, turning the wick down—nearly out. It was not more than half an hour thereafter before my wife discovered the flame issuing from the top of the chimney. She immediately awoke me, and I endeavored to put it out, first by blowing, and then by smothering it with a shawl and bed-quilts, but was unsuccessful. I then took the lamp and started to carry it out into the kitchen, but it exploded in my hand in the hall, bursting the lamp, the burning fluid setting fire to my clothing, burning my hand quite severely, and burning my foot slightly. This was unquestionably a square *bona fide* explosion.

“ (Signed)

JESSE JAMES.

“No. 132 Shonnard street, Syracuse.”

“SYRACUSE, N. Y., October 10, 1870.

“Last evening, after returning from church, I lighted a lamp filled with ‘Danforth’s Non-Explosive Petroleum Fluid,’ which my groceryman says he got of A. Shaw & Co., No. 2 Downer Block. In a moment after the wick became ignited, the lamp exploded, the glass flying in every direction, setting fire to my dress, table-spread, etc. My hand was badly burned. If it had not been for the assistance of neighbors my house would have been burned undoubtedly.

“ (Signed)

MARY H. LINSDAY.

“No. 177 East Fayette street, Syracuse.

“NOTE.—Mrs. Lindsay’s right hand was burned so badly that she could not write, and she authorized another party to attach her name to the above.”

“SYRACUSE, N. Y., October 14, 1870.

“I hereby certify that I was experimenting a few days since, in the presence of Mr. T. S. Truair, Stanley Bagg, A. Shaw, agent of the fluid, and others, with what was represented to me to be ‘Danforth’s Non-Explosive Petroleum Fluid,’ when there occurred a small explosion of its vapor, mixed with atmospheric air, as I brought a lighted match to the mouth of a small retort which contained a quantity of the fluid that had been slightly warmed.

“ (Signed)

FRANCIS E. ENGELHARD, Dr.,

“Chemist for the Salt Company of Onondaga.

“The undersigned do hereby certify that they witnessed the above explosion.

“H. L. PALMER.

JOHN J. TRUAIR,

STANLEY BAGG,

T. S. TRUAIR.”

"The house of Alexander Brown, No. 167 East Fayette street, came near being destroyed by fire by the use of this fluid. The family went out one evening, leaving the lamp lighted. It was not long before the neighbors had the privilege of extinguishing a fire which had got just nicely a going, originating from an explosion of the lamp, by all appearances."

"Mr. Gay P. Barber, No. 7 Tully street, called on his insurance agent the other day with a small bill of damages caused by an accident with the 'Danforth Fluid.'"

"CLEVELAND INSURANCE COMPANY, }
CLEVELAND, OHIO, October 12, 1870. }

"C. B. WHITING, Esq., State Agent, Home Insurance Company, New York, Syracuse, N. Y. :

"DEAR SIR—In reply to yours, 8th instant, what we think of it is expressed in enclosed circular, at which time 'Danforth's Burning Fluid' was in full blow here. We have not changed our ideas since. Several accidents have occurred from it here. At Girard, Pa., it exploded and burned a servant girl to death. At Medina, the agent experimenting with it came near losing his life. Presume other special cases can be found, but this is sufficient.

"Truly yours,

(Signed)

"S. S. COE, *Secretary*."

"We have it from very good authority that the recent \$30,000 loss at Dexter, Jefferson county, N. Y., was caused by an explosion or accident with this gunpowder fluid."

From the Albany Argus, February 28, 1871.

"The jury, after deliberation, returned the following verdict :

"That the said Susan V. Scott came to her death by burns received at her residence in Lumbar street on the evening of February 1 while engaged in filling a lamp with the so-called Non-explosive fluid ; and further, that from experiments made by Dr. Charles H. Porter, we find that such fluid is of an explosive and highly dangerous character.

"Professor Porter testified that he placed a small quantity of Danforth's oil in an empty can, and applied a light, when an explosion resulted, tearing open the can."

From the Insurance Monitor.

"A Horror in Poughkeepsie.—Poughkeepsie, Dec. 29.—Last night, John Lockhart's house, 447 Main street, was the scene of a shocking accident. About seven o'clock last evening, Mary Gibson and a little daughter of Mr. Lockhart were seated at a rear room up-stairs, sewing.

"On the table was a lamp filled with Danforth's non-explosive oil. This lamp suddenly exploded, and the oil was scattered over Mary Gibson, who ran to a pantry, and, procuring some blankets, endeavored unsuccessfully to smother the flames. With a shriek the little girl left the room, and ran down stairs to inform the family.

"In the meantime, Mary Gibson, suffering excruciating pain, had fallen on the floor nearly exhausted, and was crawling on her hands and knees toward the door leading to the entry when Mr. Lockhart arrived, and, to use his own expression, 'the flames were then three feet high all around the poor girl.' Mr. Lockhart made three attempts to tear the clothes off Mary, but was each time unsuccessful, terribly burning his own hands and arms.

"By this time the sufferer had reached the southern end of the hallway, where clothing was heaped upon her by Mr. and Mrs. Lockhart, the poor creature being then unconscious. As soon as it was deemed prudent the clothing was removed, the flames being smothered.

"The girl's face, arms, and breast, and portions of her body were shockingly burned.

"While Drs. Cooper, Carter, and Tuthill were dressing the burns, the poor sufferer shrieked: 'I will live to see him die yet!' The physicians have no hopes."

From the Girard (Pa.) Cosmopolite, March 25, 1870.

"*Horrible Accident.*—Another victim of cheap burning fluid. A young woman burned to death by the explosion of Danforth's Non-Explosive Fluid.

"The awful catastrophe which it is our painful duty to chronicle occurred at the Martin House at 5 o'clock last Monday afternoon. Ellen Shannon, a waiter girl employed in the hotel, lit a lamp suspended by a bracket at the further end of the dining room. The lamp was filled with 'R. F. Danforth's Non-Explosive Burning Fluid;' and as she turned to step down from the chair upon which she was standing, it exploded, scattering the liquid-scorching-death all over her light clothing. No other person was in the dining room at the time, but the noise of the explosion and the shrieks of the girl attracted the attention of Mr. Northrup. Upon opening the door to ascertain the cause of the uproar, he was appalled by confronting Ellen, whose person was so completely enveloped in flames as at first to create the impression that the hall was in a blaze. She fell down, uttering the most heart-rending and agonizing screams. It was found, upon examination, that at least two-thirds of her body had been burned to a blister. The poor victim of this 'non-explosive burning fluid' was particularly afraid of it, and was more than ordinarily cautious in handling it on that account. The bracket had been blown from its socket, the large and strong reflector and the lamp shivered into a thousand pieces. There was not even the lame excuse that the lamp was only partially filled, for it had been thoroughly filled that afternoon.

"The accident was due solely to the explosive character of the fluid, which evolves gas at a temperature of less than fifty degrees, as we saw demonstrated by actual tests."

Here is a copy of the circular which is used in introducing this murderous oil:

“DANFORTH'S NON-EXPLOSIVE 'SUNLIGHT' BURNING FLUID.”

“A patent distillation from Crude Petroleum. The acme of success! The biggest thing of the age! Endorsed by thousands of people and Insurance Companies.”

“The thousands of families, manufacturers, transportation companies, and dealers, who are using or selling our fluid, ask no more information than their experience furnishes, but for those not so fortunate, we present the following answers to our daily increasing inquiries, which embody most of the information desired:”

WE CLAIM

“1. It is non-explosive. See the wonderful tests wherever it is sold.”

“2. It is *fifty per cent. cheaper* than ordinary burning fluids or oils in the market.”

“3. It gives a whiter, larger, and more brilliant light.”

“4. It burns without smoke or smell.”

“5. It does not carbonize or corrode the wick.”

“6. It is free from grease or oil.”

“7. It will burn in *any lamp*.”

“8. It is the poor man's blessing. It receives the rich man's thanks.”

“9. It can be supplied at less than one-half the expense usually paid for ordinary burning fluid or oils, in any quantity, and shipped to any part of the world in barrels or cans.”

“Parties who desire to become interested in the sale or use of this valuable fluid, are cordially invited to call on or address us, and further information will be given to convince them of the great value, economy, brilliancy, and safety of the ‘Sunlight’ burning fluid over all others. Our two large distilleries, which are under the personal supervision of Mr. Danforth, enable us to supply any demand which may be made by parties who desire to purchase territory for the *exclusive* right to sell G. M. Danforth's Non-explosive ‘Sunlight’ Burning Fluid, secured to him by letters patent from the United States, to whom we can offer extraordinary inducements at less than one half the price paid for kerosene oil.”

“Our agents supplied with lamps, chimneys, wicks, cans, etc., at the manufacturer's cash rates.”

“*Read This.*—As this is a great illuminator for the million, we take extraordinary pains at all times to show to the poor its meritorious qualities. Believing in the equalization of mankind, we are always happy to exhibit ‘G. M. Danforth's Sunlight’ Burning Fluid to man, woman or child.”

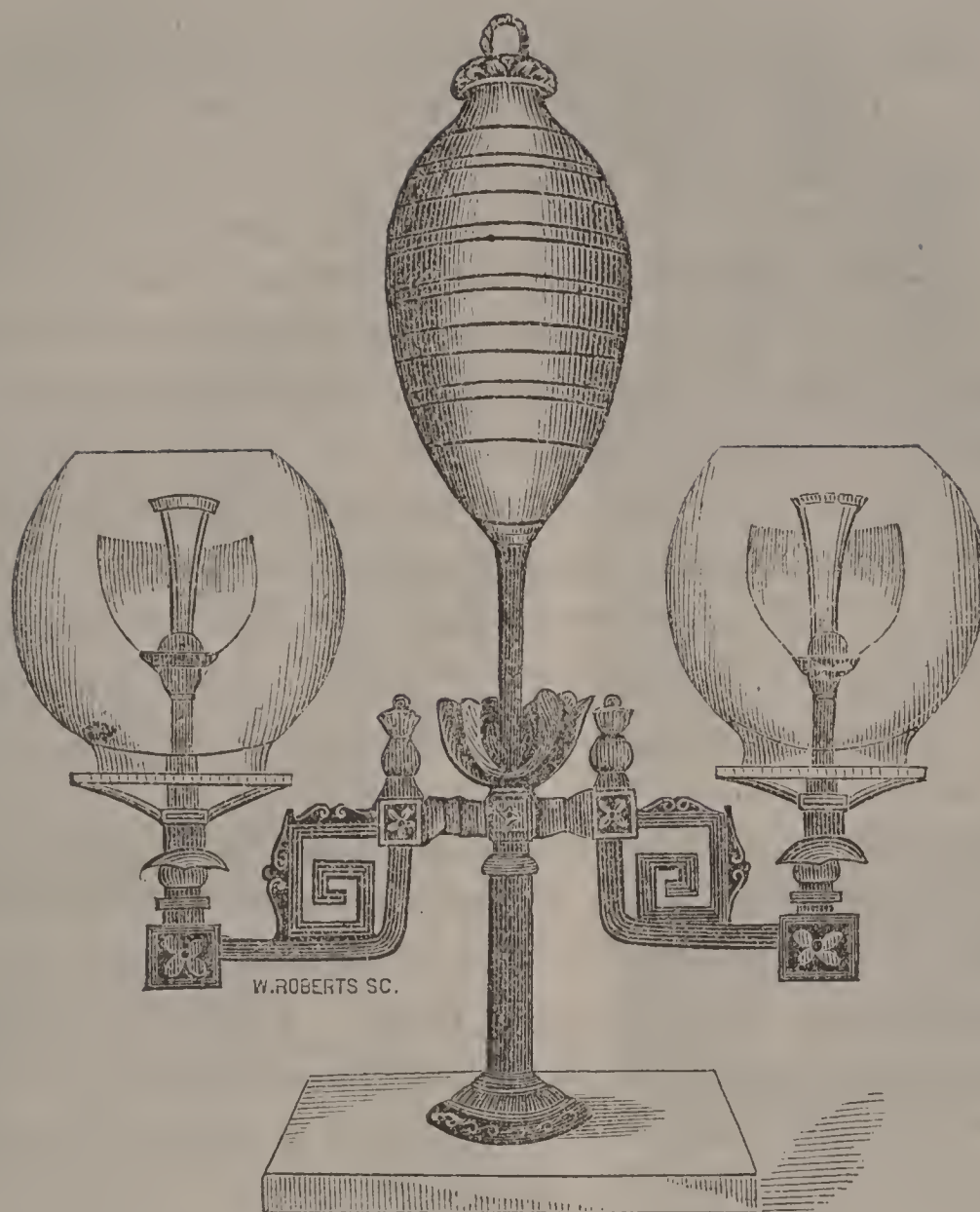
“Address,

G. M. DANFORTH & Co.,”

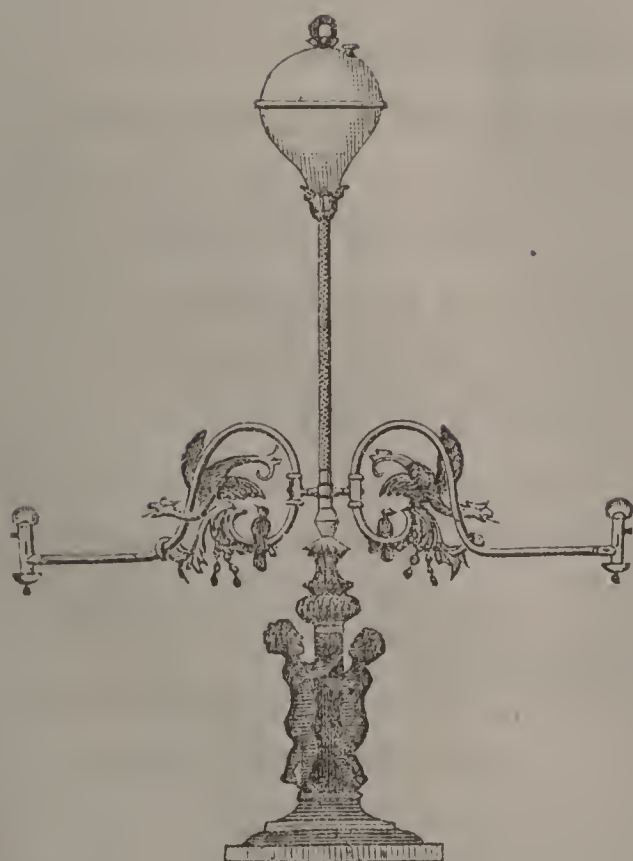
“Principal office, 953 Broadway, New York.”

Special lamps, some of them of very elegant design, have been introduced for burning the liquid gas (naphtha). They are all provided with a reservoir for the dangerous fluid, and a burner by which it is vaporized, and burns like gas.

The cuts represent some of these dangerous contrivances.



G. AY'S PATENT.



STAND LAMP.



HANGING LAMP.

NOVELTY PORTABLE GAS-LIGHT.

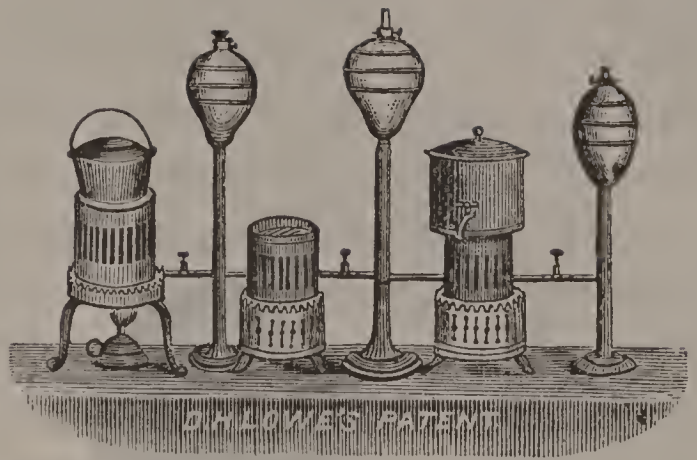
The apathy of the public in regard to this matter is beyond my comprehension. These facts are well known in almost every community, and yet, although it is now twelve or thirteen years since this class of oils came into general use, we have as yet no adequate legislation for the protection of life or property. Nothing but the most stringent laws, making it a State-prison offence to mix naphtha and illuminating oil, or to sell any product of petroleum as an illuminating oil or fluid to be used in lamps, or to be burned except in air gas machines, that will evolve an inflammable vapor below 100° F., or, better, 110° F., will be effectual in remedying the evil. In case of an accident from the sale of oil below the standard, the seller should be compelled to pay all damage to property, and if a life is sacrificed should be punished for manslaughter. It should be made extremely hazardous to sell such oils.

Naphtha, under whatever name it passes, is in one respect more dangerous than gunpowder. Gunpowder never explodes unless fire is brought to it. Naphtha, on the other hand, sends out its inflammable vapor and brings the fire from a distance. Gunpowder is thus a passive agent, while naphtha is an active one; and when introduced under the treacherous disguise of a safe oil, it is not to be wondered that frightful accidents occur.

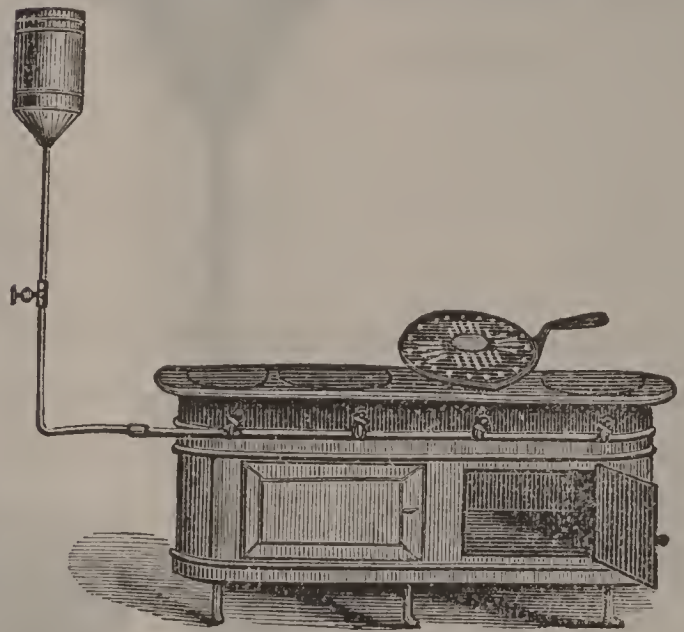
“VAPOR” AND OTHER NAPHTHA STOVES.

In this connection the “vapor stoves” demand some consideration. These stoves are supplied with naphtha (sold under various names) from a reservoir at one side, the supply being regulated by a stop-cock. The naphtha flows into a tube or chamber, which is maintained at a high temperature by the combustion; here it is vaporized to escape through suitable orifices and burn. These stoves are arranged for cooking, as well as for heating apartments. These contrivances are all, without exception, highly dangerous. They are supplied with benzine or naphtha, which is always liable to take fire and to produce explosive vapors.

Some of these vapor stoves are here represented.



THE VAPOR STOVE.



D. H. LOWE'S PATENT.

Three accidents have occurred in this city recently from their use. November 6, 1870, a fire occurred at No. 573 West Fifty-second street, caused by the explosion of a coal-oil stove. Damage, one hundred dollars.

December 31, 1870, John Higgins, aged forty, was severely injured, at No. 309 East Thirty-first street, by the explosion of a vapor stove.

February 7, 1871, a fire occurred at No. 360 Broadway, caused by the explosion of a gasolene stove. One of the firm occupying the floor was engaged in lighting a fire in the stove, when a slight explosion occurred, and in an instant the flames had communicated with the reservoir of gasolene, which supplied the stove. Fed by this inflammable material the fire soon extended throughout the entire floor.

The entire damage to the building and its contents amounted to seventy-five thousand dollars.

May 7, 1871, a liquid gas-stove exploded in the apartments of James Hughes, in the rear of the second of the five-story tenement house



No. 179 Greenwich street. The explosion scattered the burning liquid with which the stove was lighted all over the room. Mrs. Bridget Hughes, who was sitting near the stove when the explosion occurred, had her clothing set on fire, and she was so terribly burned that her life was despaired of. Mrs. Welsh, who was also in the room, was terribly burned by her clothing taking fire. Hughes, while endeavoring to extinguish the flames, was badly burned about the hands and face.

These stoves have been but recently introduced; when they shall have been more generally adopted we may expect accidents to multiply rapidly. A keg of gunpowder in a building is not as dangerous as one of these stoves.

THE SO-CALLED SAFETY LAMPS.

An indefinite number of safety lamps have been patented with a view to make it possible to burn the explosive, inflammable naphthas without danger. Many of these have been submitted to me for examination, and the conviction is unavoidable that they are anything but a blessing. No matter how well they realize the idea of protecting the oil they contain from explosion, they are treacherous friends. They allay one's fears of explosive oils, and the accident, which is always much more likely to occur outside than within lamp, is just as likely to take place.

The lamp is dropped and broken; it is filled while burning; the servant neglects to screw in the wick tube; the oil can is upset or left uncorked, or the servant uses the oil to kindle the fire. In some way or other fire gets to the vapor of oil, and an explosion occurs. Even when the "safety lamp" has an ally in the form of a "safety can," it still fails to make naphtha safe. It is an axiom that *no lamp is safe with dangerous oil, and every lamp is safe with safe oil.*

Half the so-called "safety lamps" are no safer than those which make no claim to safety; while the other half are only safe as long as they are in perfect order and subject to no carelessness in the filling or handling. Persons will be careless and thoughtless; it is human nature to be so. What we want is *safe oil; with it all lamps will be safe.* The safety lamp is positively objectionable, as it leads persons to purchase dangerous oils without question.

TESTING KEROSENE.

The operation of testing kerosene is very simple. It is merely ascertaining the temperature at which the oil evolves an inflammable vapor, the "flashing-point," and the temperature at which the oil takes fire, "the burning-point." But when I say the operation is very simple, I do not mean to say that any person is qualified to make the test in a reliable manner until he has been properly instructed. In careless, ignorant hands results may deviate twenty or thirty degrees from the truth; while in skilful hands four or five degrees will cover the most divergent results.

1. A suitable apparatus is required; the tester described in the schedule of the English Petroleum Act (Fig. 1) is a very good one*; the open tester of Tagliabue (Fig. 3) is a very good instrument, but should be protected from currents of air, when in use, by a screen.

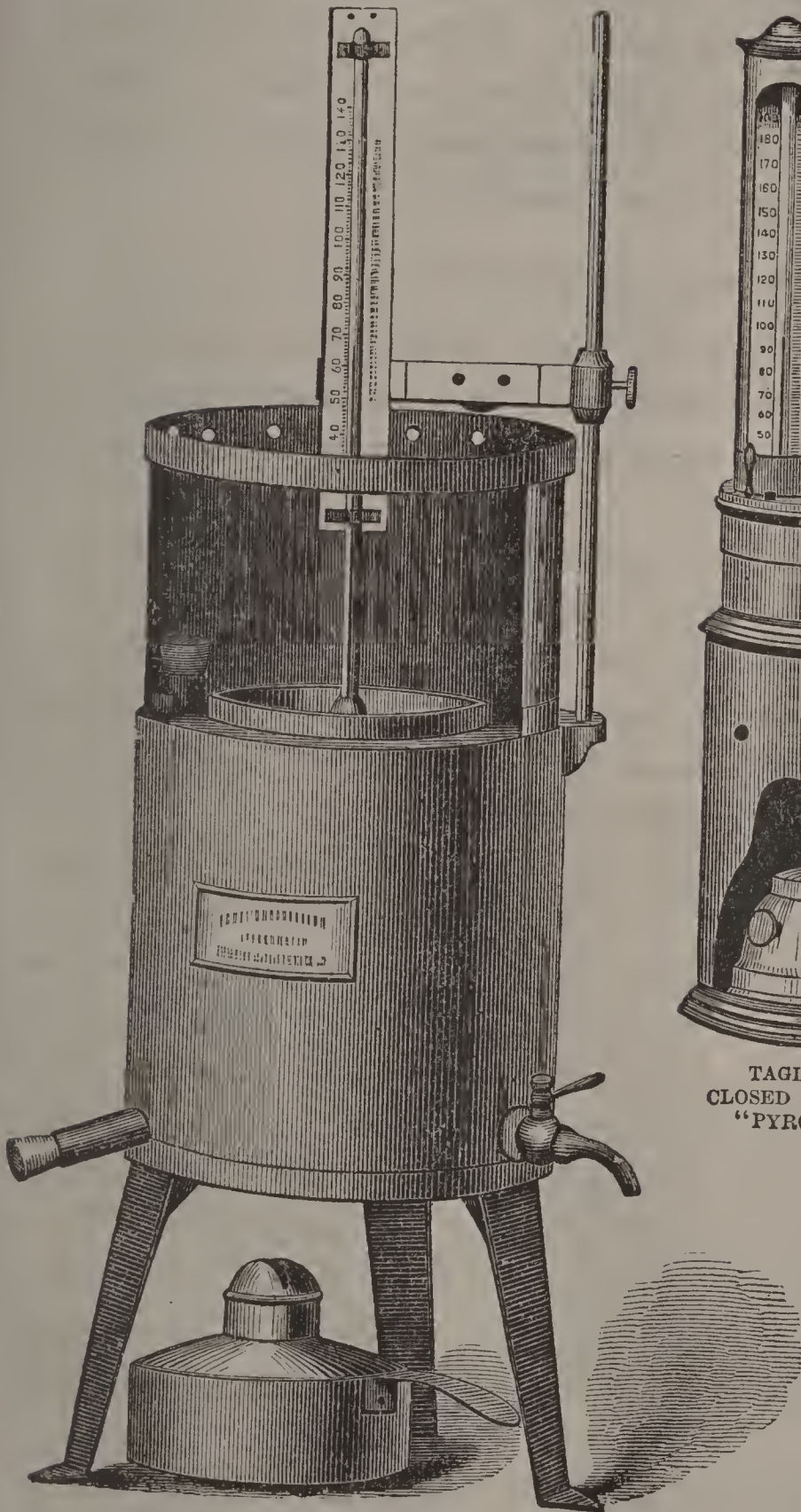
The closed tester, or "pyrometer" (Fig. 2), I consider very unreliable, as the mass of metal which is exposed is very liable to become heated by the burning vapor after the flashing-point has been reached. The result of this is the igniting of the overheated petroleum at the surface long before the thermometer records its actual temperature. I have seen the oil ignite while the thermometer stood twenty degrees below its proper burning point.

2. The oil should be heated very slowly; a test should never be completed in less than fifteen minutes; and when the oil flashes or burns but a few degrees from the standard temperature, it is hardly safe to spend less than twenty-five to forty minutes in raising the temperature of the oil to the flashing-point. Whenever the test is to be used in a prosecution against the dealer, it should be duplicated with special care. The length of time occupied depends, of course, on the size of the flame beneath the tester.

3. The thermometer should not descend far below the surface of the oil; if the bulb is well covered, it is sufficient. There is often a difference of a number of degrees in the temperature of the oil at different depths. It is well to stir the oil before applying the flame.

* This instrument is described in detail in the schedule of the English law, page 575.

FIG. 1.

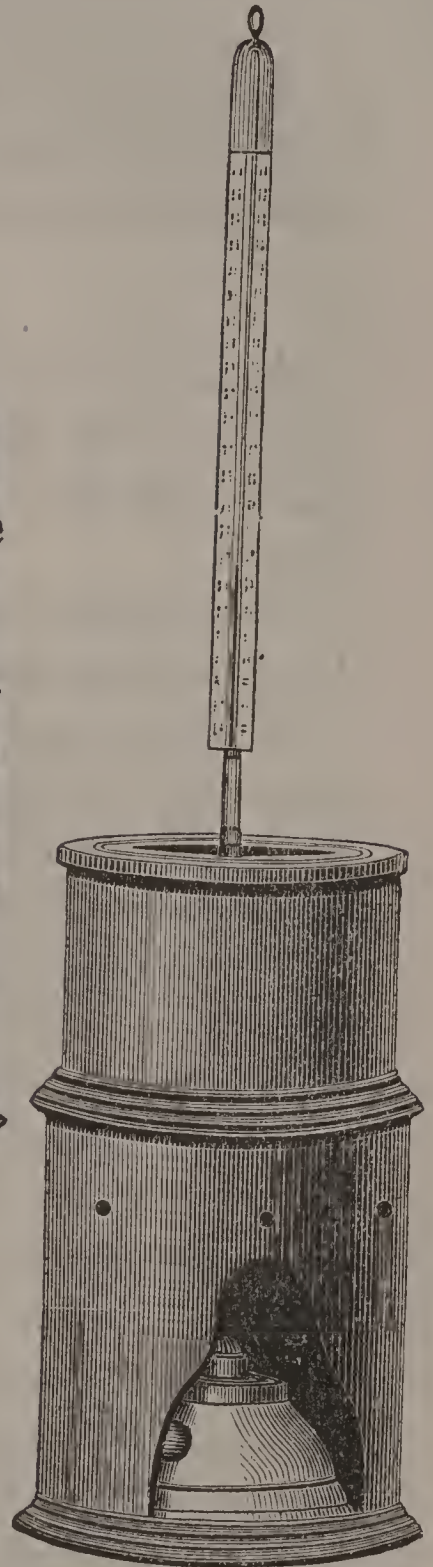


ENGLISH STANDARD TESTER.

FIG. 2.

TAGLIABUE'S
CLOSED TESTER, OR
"PYROMETER."

FIG. 3.



TAGLIABUE'S OPEN TESTER.

4. Care should be taken, in making the test, to use a very small flame for trying the oil. I have used, with entire satisfaction, a minute gas-flame, burning from a glass tube drawn to a fine point; this is attached to a burner by a flexible rubber tube. This flame should not be thrust against the surface of the oil in making the flashing-test, as it might, by heating the oil, cause it to flash a number of degrees below the proper point. It should merely be flitted quickly across the surface after noting the thermometer.

THE STANDARD OF QUALITY.

There are two distinct tests for oil: (1) *the flashing test*, (2) *the burning test*, which are often confounded; and when the law or ordinance specifies *the fire test*, there is a doubt as to which of the two tests is intended.

The flashing test determines *the flashing point* of the oil, or the lowest temperature at which it gives off an inflammable vapor.

This is by far the most important test, as it is the inflammable vapor, evolved at atmospheric temperatures, that causes most of the accidents. Moreover, an oil which has a high flashing test is sure to have a high burning test, while the reverse is not true.

The burning test fixes the burning point of the oil, or the lowest temperature at which it takes fire. The burning point of an oil is from ten to fifty degrees Fahrenheit higher than the flashing point. The two points are quite independent of each other; the flashing point depends upon the amount of the most volatile constituents present, naphtha, etc., while the burning point depends upon the general character of the whole oil. Two per cent. of naphtha will lower the flashing point of an oil ten degrees without materially affecting the burning test. The burning test does not determine the real safety of the oil, that is the absence of naphtha. The standard which has been generally adopted as a safe one fixes the flashing point at 100° F., or higher; and the burning point at 110°, or higher.

In the English act and some of the more recent laws of the States of the American Union, the burning test has been very judiciously omitted, as two distinct tests are often confusing, and, moreover, the burning test or point is not an index of the safety of the oil. More than half of all the samples of oil which have been tested for the Health

Department did not take fire below 110° F., consequently they were safe according to the burning test, but only 28 of 736 samples were really safe, all the rest evolving inflammable vapors below 100° F.

The flashing test should therefore be the only test mentioned in laws framed to prevent the sale of dangerous oils.

What flashing point should be selected as a standard of safety, is a question on which there is some difference of opinion. The higher the flashing point the safer the oil. Animal and vegetable oils do not flash below 500° to 600° F., hence it is impossible to have an explosion or any burning accident with a lamp or can filled with such an oil. The flashing point should be somewhat higher than the highest temperature the oil ever reaches in the lamps or cans. Our highest summer temperature does not far exceed 90° F., though a can of oil placed in the sun or near a fire might become much hotter.

The point of 100° F. does not seem to me to be high enough to secure immunity from danger, though it may be said very few, if any, accidents occur with oil which does not flash below this temperature. In some of the laws 110° is fixed as the flashing point, and in one of them 120° F. With a view to throwing some light on this question, an investigation was made of the temperature of the oil in burning lamps, the results of which are presented in the following tables:

THE TEMPERATURE OF OIL IN BURNING LAMPS.

FIRST SERIES.—*Temperature of the Room 73° F. to 74° F.*

No.	Kind of Lamp.	Capacity of Lamp.	TEMPERATURE OF THE OIL.				
			After one hour.	After two hours.	After four hours.	After seven hours.	Average for the seven hours.
1	Brass hand-lamp.....	8 oz.	85° F.	82° F.	85° F.	86° F.	84°.5 F.
2	Brass hand-lamp.....	24 "	79°	83°	84°	82°	82°
3	Glass stand-lamp.....	8 "	77°	78°	79°	80°	78°.5
4	Glass stand-lamp.....	11 "	77°	81°	84°	82°	81°
5	Glass stand-lamp.....	20 "	78°	79°	79°	80°	79°
6	Glass stand-lamp.....	7 "	82°	80°	85°	84°	82°.75
7	Glass stand-lamp.....	10 "	84°	86°	84°	82°	84°
8	Glass hand-lamp.....	9 "	79°	78°	85°	85°	81°.75
9	Glass hand-lamp.....	6 "	81°	82°	86°	86°	83°.75
10	Glass hand-lamp.....	7 "	80°	78°	....	....	79°
11	Brass student-lamp.....	13 "	82°	80°	83°	84°	82°.25
12	Glass stand-lamp.....	10 "	81°	81°	79°	78°	79°.75
13	Brass stand-lamp.....	11 "	92°	89°	88°	86°	88°.75
14	Tin lantern.....	7 "	89°	86°	88°	87°	87°.5
15	Glass bracket-lamp.....	19 "	82°	82°	84°	83°	82°.75
16	Glass stand-lamp.....	29 "	82°	80°	80°	84°	81°.5
17	Brass student-lamp.....	7 "	80°	....	88°	....	84°
18	Brass stand-lamp.....	14 "	84°	85°	87°	87°	85°.75
19	Brass stand-lamp.....	12 "	100°	100°	92°	91°	95°.75
20	Metal stand-lamp.....	9 "	82°	82°	88°	87°	84°.75
21	Brass stand-lamp.....	12 "	91°	92°	88°	85°	89°
22	Bronze stand-lamp.....	16 "	83°	76°	79°	85°	80°.75
23	Glass hand-lamp.....	.. "	79°	80°	82°	82°	80°.75

With the air of the room at from 73° to 74° F., the temperature of the oil in the burning lamps ranged from 76° to 100° F., the highest temperature of 100° having been reached in a metal lamp at the end of one hour. That this was an exceptionally high temperature is shown by the fact that the highest temperature reached in any other lamp was 92° F. The following is a synopsis of the observations :

	23 Lamps.	11 Metal Lamps.	12 Glass Lamps.
Highest temperature reached..	100°	100°	86°
Lowest " " ..	76°	76°	76°
Average temperature.....	83° F.	86°	81°

SECOND SERIES.—*Temperature of the Room 82° F. to 84° F.*

No.	Kind of Lamp.	Capacity of Lamp.	TEMPERATURE OF THE OIL.				
			After one hour.	After two hours.	After three h'rs	After four h'rs.	Average for four hours.
	Air of room.....	.....	82°	83°	84°	83°	83°
1	Brass hand-lamp.....	8 oz.	92°	95°	96°	95°	94°.5
2	Brass hand-lamp.....	24 “	88°	94°	94°	93°	92°.25
3	Glass stand-lamp.....	8 “	84°	88°	86°	84°	85°.5
4	Glass stand-lamp.....	11 “	84°	86°	86°	84°	85°
5	Glass stand-lamp.....	20 “	85°	86°	87°	86°	86°
6	Glass stand-lamp.....	7 “	86°	87°	88°	88°	87°.25
7	Glass stand-lamp.....	10 “	88°	87°	89°	88°	88°
8	Glass hand-lamp.....	9 “	87°	90°	90°	90°	89°.25
9	Glass hand-lamp.....	6 “	87°	91°	89	87°	88°.5
10	Glass hand-lamp.....	7 “	84°	86°	86°	84°	85°
11	Brass student-lamp.....	13 “	86°	88°	88°	88°	87°.5
12	Glass stand-lamp.....	10 “	85°	86°	86°	85°	85°.5
13	Brass stand-lamp.....	11 “	104°	103°	101°	101°	102°.25
14	Tin lantern.....	7 “	95°	96°	94°	96°	95°.25
15	Glass bracket-lamp.....	19 “	84°	85°	84°	84°	84°.25
16	Brass stand-lamp.....	29 “	84°	85°	84°	84°	84°.25
17	Grass student-lamp.....	7 “	87°	88°	86°	84°	86°.25
18	Brass student-lamp.....	14 “	91°	93°	92°	91°	91°.75
19	Brass stand-lamp.....	12 “	101°	100°	98°	96°	98°.75
20	Metal stand-lamp.....	9 “	89°	92°	94°	93°	92°
21	Brass stand-lamp.....	13 “	88°	98°	94°	96°	94°
22	Bronze stand-lamp.....	16 “	82°	88°	88°	89°	86°.75
23	Glass hand-lamp.....	6 “	84°	86°	85°	84°	84°.75
24	Brass student-lamp.....	10 “	120°	120°	120°	118°	119°.5
25	Brass student-lamp.....	12½“	112°	115°	115°	116°	115°

With the air of the room at from 82° to 84° F., the temperature of the oil in the burning lamps ranged from 82° to 120° F. The temperature 120° was exceptional, being confined to one lamp.

SYNOPSIS OF OBSERVATIONS.

	In 13 Metal Lamps.	In 13 Glass Lamps.	In 25 Lamps.
Highest temperature reached..	120° F.	91°	120°
Lowest “ “ ..	82°	84°	82°
Average “ “ ..	96½°	86°	91½°

THIRD SERIES.—*Temperature of Room 90° F. to 92° F.*

No.	Kind of Lamp.	Capacity of Lamp.	TEMPERATURE OF THE OIL.				
			After one hour.	After two hours.	After three hours.	After four hours.	Average for four hours.
	Air of the room.....	.....	92°	90°	92°	90°	91°
1	Brass hand-lamp.....	8 oz.	90°	98°	100°	98°	96°.5
2	Brass hand-lamp.....	24 "	89°	98°	102°	100°	97°.25
3	Glass stand-lamp.....	8 "	88°	90°	93°	94°	91°.25
4	Glass stand-lamp.....	11 "	88°	92°	94°	94°	92°
5	Glass stand-lamp.....	20 "	85°	92°	94°	94°	91°.25
6	Glass stand-lamp.....	7 "	90°	94°	96°	93°	93°.25
7	Glass stand-lamp.....	10 "	90°	96°	96°	96°	94°.5
8	Glass hand-lamp	9 "	88°	95°	98°	98°	94°.75
9	Glass hand-lamp	6 "	89°	95°	96°	97°	94°.25
10	Glass hand-lamp	7 "	88°	92°	93°	94°	91°.75
11	Brass student-lamp.....	13 "	89°	100°	102°	102°	98°.25
12	Glass stand-lamp.....	10 "	88°	92°	93°	93°	91°.5
13	Brass stand-lamp	11 "	106°	114°	116°	110°	111°.5
14	Tin lantern.....	7 "	99°	106°	107°	105°	104°.25
15	Glass bracket-lamp	19 "	85°	92°	91°	91°	89°.75
16	Glass stand-lamp.....	29 "	86°	91°	92°	92°	90°.25
17	Brass student-lamp.....	7 "	92°	99°	100°	100°	97°.75
18	Brass student-lamp.....	14 "	94°	100°	100°	100°	98°.5
19	Brass stand-lamp.....	12 "	108°	112°	112°	107°	109°.75
20	Metal stand-lamp	9 "	91°	96°	100°	99°	96°.5
21	Brass stand-lamp.....	12 "	104°	110°	108°	106°	107°
22	Bronze stand-lamp.....	16 "	84°	90°	95°	98°	91°.75
23	Glass hand-lamp	6 "	90°	92°	94°	94°	92°.5
24	Brass student-lamp.....	10 "	124°	129°	129°	128°	127°.5
25	Brass student-lamp.....	12½ "	120°	126°	127°	127°	125°

With the air of the room at from 90° to 92° F., the temperature of the oil in the burning lamps ranged from 84° to 129° F. The highest temperature being exceptional.

SYNOPSIS OF THE OBSERVATIONS.

	In 25 Lamps.	In 13 Metal Lamps.	In 12 Glass Lamps.
Highest temperature observed..	129°	129°	98°
Lowest " " ..	84°	84°	85°
Average " " ..	98¾°	104½°	92⅓°

By these results it appears that the temperature of the oil in lamps often rises much above 100° F., thus reaching a temperature at which oil, *which does not emit a combustible vapor below 100° F.*, would be dangerous. It is apparent that 100° F. is too low a standard for safety; 120° F. would not be too high a standard, and its adoption would not add three cents per gallon to the cost of the oil.

PUBLIC OPINION NO CHECK ON THE MANUFACTURE AND SALE OF
DANGEROUS OILS.

As long as larger profits can be gained by selling naphtha, benzine, and dangerous kerosene, than by selling safe oil, public opinion cannot, at least in large cities, check the barbarous traffic. That it has not been checked in New York, but has increased, is shown by the statistics for the past year. On January 11, 1869, the dangerous character of the oils sold in the Metropolitan District was reported to the Board of Health in response to an inquiry. The report was published in most of the daily papers, was circulated in pamphlet form, and was incorporated in the annual report of the Board. Moreover, from that day to this, articles, communications, and editorials have constantly appeared in the papers. It may be fairly assumed that the public is fully informed on the subject. Now, if we consult the statistics we shall find that Fire Marshal McSpedon reported :

	1869.	1870.
Total fires in New York.....	913	866
Fires caused by kerosene and naphtha (liquid gas).....	98	157
Percentage of fires due to kerosene, etc.....	11	18

Nearly twice the percentage of fires by kerosene in 1870, as in the previous year. Of the 157 fires caused by dangerous oils, 116 were caused by kerosene, 41 by "liquid gas." Deaths known to have been caused by kerosene and liquid gas (naphtha), twenty-one (21). Deaths from clothes taking fire, cause not stated, certainly some from kerosene, thirty-nine (39). Fire Marshal Keady reported :

	1869.	1870
Total fires in Brooklyn	311	285
Fires caused by kerosene oils	31	31
Percentage of fires due to kerosene.....	10	11

"Twenty human beings," concludes the report, "were burned to death in Brooklyn last year (1870), just double the number of deaths from fire during the year previous. Now as to the cause? I answer, *kerosene*. In nearly every case the cause of death may be traced to the explosion of a kerosene lamp, or to a fire caused by kerosene. Some of the victims poured kerosene oil on stove-fires to make them burn more rapidly, and have been burned to death in the experiment, but in most cases the lamp has been the destructive agent. Twenty fatal cases in one year! Need more be said against the use of so dangerous an article as kerosene?"

There came to my knowledge, in two years, by the ordinary channels of two daily papers, and the usual sources of information, the following frightful list of kerosene accidents in the United States, which is necessarily very imperfect:

	1869.	1870.
Deaths from kerosene and liquid gas	52	84
Serious injuries “ “	50	50
Slight “ “ “	6	11
Total.....	<u>108</u>	<u>145</u>

A notable feature of these accidents is the fact that the victims are generally women or children. The fearful railroad accident which occurred at New Hamburg on February 6 (1871), in which twenty-two persons were killed, the greater number burned to death by crude petroleum, is one of the saddest illustrations of the inflammability of this oil. February 16, another railroad accident occurred on the same road, in which a car was thrown from the track, and a passenger seriously burned by an explosion of naphtha, used for lighting the car.

It is a very common practice now, at least in this city, to light street cars and stages with lamps supplied with naphtha. Aside from the danger of explosion, the imperfect combustion makes the air very offensive. This is specially noticeable in the Fifth avenue stages, in which the air is often nauseating from the offensive odors of partially burned naphtha.

CHARACTER OF THE OILS NOW SOLD IN NEW YORK.

To determine whether there has been any improvement in the quality of the oils sold in New York, one hundred samples were recently purchased at retail stores in various parts of the city. The following tables embrace the results of the investigation, which are arranged in three tables.

Table I. includes the safe oils, which do not emit inflammable vapors at temperatures below 100° F.

Table II. includes the unsafe kerosenes, which emit inflammable vapors below 100° F.

Table III. includes the highly dangerous naphthas and benzines which are sold as safe oils.

In all the tables the samples are arranged in the order of safety, beginning with the safest.

TABLE 1.

SAFE KEROSENE OILS, WHICH DO NOT EMIT AN INFLAMMABLE VAPOR BELOW 100° F.

NUMBER.	DATE OF PURCHASE.	NAME OF DEALER.	LOCALITY.	DENSITY BEAUME.	FLASHING POINT.	BURNING POINT.
	1871.					
54	March 7	J. P. Dennison	311 Sixth avenue	47	114	131
8	4	.....	95 West Houston street	46	104	130
59	7	.....	116 Ninth avenue	47	104	129
70	7	.....	32 Baxter street	46	101	123
73	7	D. Kolster	55 Rose street	47	101	126
3	3	S. Hoechster	906 Second avenue	46.5	100	123
92	9	J. G. Reinhard & Co.	304 Greenwich street	47.5	100	120
		Average . . . . .	.....	46.7	104.9	126

TABLE II.

DANGEROUS KEROSENE OILS, WHICH EMIT AN INFLAMMABLE VAPOR AT A TEMPERATURE BELOW 100° F.

NUMBER.	DATE OF PURCHASE.	NAME OF DEALER.	LOCALITY.	SPECIFIC GRAVITY, BEAUME.	FLASHING POINT.	BURNING POINT.
	1871.					
34	March 6	W. Walter & Co.	721 Third avenue	46	99	117
60	7	.....	142 Tenth avenue	47	99	116
97	9	.....	8 Pearl street	46.5	99	120
18	4	.....	449 East Houston street	46.5	98	108
5	3	J. Kane	833 Third avenue	46.5	97	110
10	4	.....	361 Second avenue	46	95	120
38	6	Beh, Geils & Co.	560 Seventh avenue	46.5	95	113
43	6	.....	352 Tenth avenue	47	95	109
66	7	— Lynch	278 Bowery	47.5	95	107
77	8	.....	407 East Nineteenth street	47.5	95	112
7	4	— Keating	Varick and Downing streets	47.5	94	112
19	4	.....	30 Ludlow street	47	94	112
27	6	H. Bohlen	51 Bedford street	46.5	94	111
67	7	.....	190 Grand street	47.5	94	122
86	8	C. T. Rose	508 Grand street	47	94	115
99	9	.....	153 Greenwich street	47	94	116
29	6	T. Hope	494 Third avenue	48	93	105
32	6	.....	228 East Forty-first street	47	93	104
61	7	.....	252 Tenth avenue	47.5	93	113
71	7	.....	100 Park street	46	93	116
89	8	.....	Fifty-sixth street and Fifth avenue	47	93	118
14	4	.....	180 East Houston street	46.5	92	118
62	7	.....	331 West Forty-fourth street	47.5	92	112
72	7	.....	269 William street	46.5	92	114
76	7	A. Bavendam	329 Water street	47	92	112
85	8	C. Mohr	85 Pitt street	47.5	92	110
30	6	C. Feld	676 Second avenue	47.5	91	109
37	6	.....	1409 Broadway	47.5	91	104

NUMBER.	DATE OF PURCHASE.	NAME OF DEALER.	LOCALITY.	SPECIFIC GRAVITY. BEAUME.	FLASHING POINT.	BURNING POINT.
76	1871. March 8	.....	67 East Houston street.....	47	91	103
80	8	.....	176 Avenue A.....	47.5	91	114
2	3	C. H. Steinkamp....	863 Second avenue.....	48	90	100
4	3	J. H. Feimeyer.....	859 Third avenue.....	46.5	90	105
12	4	.....	326 East Twenty-eighth street....	47	90	110
22	4	W. J. Close & Co....	5 Chatham square.....	47.5	90	100
33	6	P. Riley.....	695 Third avenue.....	47.5	90	113
35	6	E. Von Lilienthal...	847 Sixth avenue.....	47	90	102
40	6	L. Stroh.....	353 West Thirty-seventh street...	47	90	113
45	6	F. Gorey.....	442 West Twenty-eighth street....	47	90	115
51	7	G. H. Hillgé.....	87 Greenwich avenue.....	47.5	90	103
57	7	H. Ringen.....	102 Eighth avenue.....	47.5	90	109
64	7	J. H. Coke.....	141 West Thirty-ninth street.....	46	90	114
82	7	.....	628 East Ninth street.....	48	90	113
91	9	J. Read, Jr., & Co.	101 Hudson street.....	46	90	112
95	9	.....	75 Washington street.....	47	90	98
98	9	.....	7 Church street.....	48	90	113
90	9	M. Knieff.....	165 West Broadway.....	47	89	110
6	4	Mrs. Young.....	763 Third avenue.....	48	88	98
17	4	.....	115 Ridge street.....	47	88	106
31	6	F. Beuse.....	765 Second avenue.....	46.5	88	98
36	7	H. Bahr.....	63 West Forty-fourth street.....	48.5	88	108
69	7	.....	72 Bayard street.....	47	88	116
78	8	.....	427 East Nineteenth street.....	47.5	88	108
50	7	H. Kugeler.....	386 Bleeker street.....	47.5	87	108
87	8	M. Blumenthal.....	408 Madison street.....	46	87	110
1	3	F. Bohde.....	825 First avenue.....	48	86	96
41	6	D. Boosman.....	451 Ninth avenue.....	47	86	110
52	7	.....	235 Sixth avenue.....	47	86	101
74	7	.....	3 Dover street.....	47.5	86	112
44	6	C. W. Sherwood....	328 Tenth avenue.....	46	85	100
47	6	.....	649 Washington street.....	46	85	110
49	.....	B. H. Pelzer.....	381 Bleeker street.....	46.5	85	99
84	8	.....	31 Avenue C.....	47	85	110
88	8	.....	814 Second avenue.....	47	85	101
96	9	M. Henken.....	40 Greenwich street.....	47	84	114
13	4	.....	140 East Houston street.....	47.5	83	112
28	6	A. W. Lemcke.....	682 Greenwich street.....	47	83	100
39	6	F. Liss.....	568 Eighth avenue.....	47.5	83	98
46	6	.....	315 Seventh avenue.....	47	83	98
56	7	.....	135 Seventh avenue.....	47	82	104
94	9	.....	26 Rector street.....	47.5	82	100
9	4	W. Holweg.....	206 Third avenue.....	47	81	92
11	4	.....	344 East Twenty-third street....	47.5	81	95
25	6	.....	Morton and Bedford streets.....	43	81	98
53	7	.....	453 Sixth avenue.....	47	81	105
55	7	.....	139 West Nineteenth street.....	47	81	93
83	8	.....	170 Avenue C.....	46.5	81	101
24	6	A. Cole.....	463 Hudson street.....	46.5	80	97
48	7	F. Ostermeyer.....	119 Christopher street.....	47	80	97
58	7	.....	86 Ninth avenue.....	47.5	80	99
100	9	F. Meineke.....	15 Worth street.....	47	80	102
63	7	.....	606 Eighth avenue.....	46.5	79	102
23	6	J. A. Blair.....	Bedford and Carmine streets.....	46	78	102
26	6	L. Immen.....	83 Bedford street.....	46.5	78	93
42	6	.....	444 Tenth avenue.....	47	77	100
93	9	.....	59 West street.....	46.5	74	100
Average			.....	47	86.6	107

TABLE III.

HIGHLY DANGEROUS OILS. NAPHTHAS OR BENZINES, SOLD AS SAFE OILS, WHICH EVOLVE INFLAMMABLE VAPORS AND TAKE FIRE AT ALL TEMPERATURES.

No.	DATE OF PURCHASE.	NAME OF DEALER.	LOCALITY.	SPECIFIC GRAVITY BEAUME.	FLASHING POINT.	BURNING POINT.
	1871.					
21	March 4..	G. L. Smith...	40 East Broadway.	73	All temperatures, even down to 0° F.	All temperatures, even down to 0° F.
81	" 8..	.....	162 Avenue A.....	72.5	
15	" 4..	.....	177 Ludlow street..	72	
20	" 4..	.....	2 Pike street.....	72	
16	" 4..	.....	331 E. Houston st..	70	
68	" 7..	.....	164 Grand street...	70	
79	" 8..	.....	418 E. Fifteenth st.	70	
65	" 7..	.....	358 Bowery	68.5	

In my last report on kerosene oil seventeen localities were mentioned where naphtha was sold for illuminating purposes. These establishments were all visited during the present investigation. At six of them naphtha is still sold; at four of them it is not sold at present; at the other seven localities the business has changed and no oils are sold. Thirteen other localities were mentioned where oils almost as dangerous as naphtha were sold. These were all visited, and it was found that at six of them the business had changed; but at the other seven where kerosene was still sold, the quality of the oils had considerably improved.

In 1869 the following results were obtained:

Safe oils evolving no inflammable vapors below 100° F.....	21
Dangerous kerosene oils flashing below 100° F.....	586
Gasolenes, naphthas, and benzines, sold as safe oils.....	29
Total unsafe oils.....	615
Total number tested.....	636

The recent investigation of March, 1871, gives:

Safe oils, evolving no inflammable vapors below 100° F.....	7
Dangerous kerosene oils, flashing below 100° F.....	85
Naphthas, sold as safe oils.....	8
Total unsafe oils.....	93
Total number tested.....	100

The seven safe oils varied in density from 46° B. to 47° B., averaging 46° B. They flashed at from 100° F. to 114° F., averaging 104° F. They took fire at from 120° F. to 131° F., averaging 126° F.

The eighty-five dangerous kerosenes varied in density from 46° B. to 48° B., averaging 47° B. They flashed at from 74° F. to 99° F., averaging 86.6° F. They took fire at from 92° F. to 122° F., averaging 107° F.

Dr. C. B. White filled a lamp with oil which had a gravity of 45° B., flashed at 90° F. and took fire at 110° . After the lamp had burned two hours, he purposely permitted it to fall and be broken, when the whole mass of oil instantly took fire. Yet, this sample had a flashing point three and four-tenths degrees higher than the average of these eighty-five samples.

It seems, therefore, that there is no essential improvement in the character of the oils sold in New York. While the percentage of safe kerosenes is higher, the percentage of naphtha has also increased. The evil can only be eluded by a well conceived State law, which shall make it a misdemeanor to sell or keep for sale, for illuminating purposes, any coal oil or petroleum product that evolves a combustible vapor below 100° F.

EFFORTS OF THE BOARD OF HEALTH TO PROTECT THE PUBLIC FROM DANGEROUS OILS.

As early as 1868 the attention of the Board of Health was directed to this subject. An elaborate investigation was made, to ascertain the quality of the oils sold in the Metropolitan district. This examination showed that the oils sold in New York were of the poorest quality. Of 636 samples tested, only 21 were found to be safe. In consequence of this discovery the Board adopted the following ordinance :

“No petroleum oil, kerosene oil, or other liquid having like composition or qualities as a burning fluid as said oil, shall be kept or offered for sale as a burning fluid, for lamps or any like receptacle, for the purpose of illumination, nor shall such oil or fluid be purchased for use, or be used as a burning fluid for any such lamp or receptacle, or be kept for such use, unless all such oil or fluid shall be of such quality and ingredients that it shall stand and be equal to both the following tests and conditions, to wit :

“1. That it shall not take fire or burn at a temperature below 110° Fahr.

“2. That it shall not evolve an explosive vapor below 100° Fahr.”

Under this ordinance the attorney of the Board was directed to commence suits against those who were found to sell oil below the standards of safety fixed by the Board. About one hundred cases were made out and tried in the Sixth District Court, but were dismissed on the ground that the Board of Health had no authority to pass the ordinance.

Not succeeding in enforcing the ordinance here, the cases were carried to a higher court. In this position they became a legacy to the attorney of the new Health Department of the City of New York, and under his direction they were pushed until a decision was rendered at General Term of the Court of Common Pleas, sustaining the court below. The following is the report of the case :

DECISION DENYING THE AUTHORITY OF THE BOARD OF HEALTH TO PASS THE KEROSENE ORDINANCE.

A decision was rendered at the General Term of the Court of Common Pleas yesterday on an appeal from a judgment of the Sixth District Court, in the case of the Metropolitan Board of Health *v.* M. Schmades. This action was brought by the plaintiffs to recover a penalty of \$50 for an alleged violation of an ordinance passed by them on the 25th January, 1869, and which is in the following words, to wit :

“That no petroleum oil, kerosene oil, or other liquid (having like composition or qualities as a burning fluid as said oil), shall be kept or offered for sale as a burning fluid for lamps, or in any receptacle for the purpose of illumination; nor shall such oil or fluid be purchased for use, or be used as a burning fluid for any such lamp or receptacle, or be kept for such use, unless all such oil or fluid shall be of such quality and ingredients that it shall stand and be equal to both the following tests and conditions, to wit :

“1. That it shall not take fire or burn at a temperature below 110° Fahrenheit; and

“2. That it shall not evolve an explosive vapor at a temperature below 100° Fahrenheit.”

The defendant demurred to the complaint, on the ground that it did not set forth facts sufficient to constitute a cause of action. The Justice sustained the demurrer, and dismissed the complaint. The plaintiffs appealed to this court. George Bliss, Jr., for plaintiff and appellant; Cross, Rice & Holt, for defendant and respondent.

LOEW, J.—It appears that the complaint in this case was dismissed by the court below on the ground that the plaintiffs had no authority to pass the ordinance, for an alleged violation of which this action was brought. The power of the Board of Health to enact an ordinance like the one under consideration could not well be questioned

(Laws of 1866, chap. 74, secs. 12 and 20; id., chap. 686, secs. 1 and 3; Laws of 1867, chap. 956, sec. 10), were it not for other legislation respecting the storage and sale of kerosene or petroleum. In 1865 an act was passed by the Legislature (Laws 1865, chap. 773, sec. 3) prohibiting petroleum, kerosene, and other oils from being stored or sold within the corporate limits of any city in the State, "the fire-test of which shall be less than 100° Fahrenheit." On the 4th day of May of the following year, two other acts were passed (Laws of 1866, chap. 872, sec. 1, id. and chap. 873, sec. 51), one of which amends the act of 1865 and changes the prescribed test to 110° Fahrenheit, and the other enacts that "no refined petroleum, kerosene, earth or rock oil, or machinery oil, shall be kept upon sale or stored within the corporate limits of the city of New York, the fire-test of which shall be less than 100° Fahrenheit." Although both of these acts were passed on the same day, we think the last-mentioned one should be deemed the later and controlling statute, not only because its number is greater and because it was passed with special reference to the city of New York—while the former is applicable to all the cities in the State—but also for the reason that it was not to go into operation until the 1st day of June, 1866, whereas the other took effect immediately upon its passage. Effect will thus be given to both statutes in the city of New York, one being in force from the date of its passage to June 1, at which time the other went into effect and repealed all other statutes in any case provided for by that act or inconsistent with its provisions, so far as the same relate to said city (Laws 1866, chap. 873, sec. 62). As the Legislature has, in section 51 of the last-mentioned act, particularly specified what the fire-test of refined petroleum, kerosene, and other oils shall be, in order to render the storage and sale thereof lawful, and also prescribed the circumstances under, as well as the kind of buildings in which the same may be stored, we think it is not competent for the Board of Health to create or impose additional tests or conditions as a pre-requisite to the right to keep or sell such oil, as it has attempted to do in the ordinance referred to. The claim of the plaintiffs that said ordinance is consistent with the act of the Legislature, as the former only has reference to the keeping and offering for sale petroleum which is to be used as a burning fluid, or for the purpose of illumination, while the latter relates to the storage and sale thereof generally, will not avail them. The act of the Legislature prohibits the storage or sale of petroleum that does not come up to a certain test, which implies that it may be so stored and sold if it be of that test. Now the ordinance of the Board of Health prescribes another and different test, and forbids the keeping or selling thereof, notwithstanding the requirements of the law may be fulfilled. The two are, therefore, manifestly inconsistent with each other. Beside, a violation of the statute in respect to the test fixed by it, would necessarily also be a violation of the ordinance; and if the latter were valid, a party offending would be subjected to two actions to recover distinct penalties for the same cause—one brought by the Fire Department and the other by the Board of Health. Nor do we think that there is anything in section 10 of the act passed the year after the above law (Laws of 1867, chap. 956, sec. 10) which confers authority on the Board of Health to pass the ordinance in question. That section gives the Board power to make ordinances upon all matters and subjects so far as the power of said Board extends. But such ordinances must be consistent with the Constitution and laws of this State (Laws of 1866.

chap. 74, sec. 20; id., chap. 686, sec. 1), and, as we have already seen, the ordinance referred to is inconsistent with a law on the same subject, and is, therefore, invalid and of no effect. In our opinion the judgment of the court below was correct and should be affirmed.

Chief-Judge Daly and Judge Van Brunt concurred.

ACTION OF THE FIRE COMMISSIONERS.

Soon after the publication of the results of the investigations made by the officers of the Board of Health, the Fire Commissioners caused examinations to be made, the results of which fully confirmed our statements with regard to the dangerous character of the oil sold in New York. The Fire Commissioners also claimed that they alone had jurisdiction in the matter, as was afterward decided by the court. But it was found by them that the fire laws under which they acted would not enable them to prevent the sale of the dangerous oils. They have continued, however, to test oils, and in this manner do all that can be done under the law by diffusing a knowledge of the bad quality of the oils. Their standard of safety has, however, been ten to thirty degrees lower than that adopted by the Board of Health. The fire law, while it does not regulate the sale, defines the conditions on which oils may be stored in the city, and mentions a "fire test" of 100° Fahr. This was construed by the Fire Commissioners to refer to the "burning point," or the temperature at which the oil takes fire and continues to burn. In the ordinance of the Board of Health the "flashing point," a temperature at which the oil first gives off an inflammable vapor, was fixed at 100° Fahr. This accounts for an apparent discrepancy between the results obtained by them and by us.

The "flashing point" of an oil is generally from ten to thirty degrees lower than the "burning point," consequently their standard was so many degrees lower than ours. An oil which burns at 100° Fahr. may flash at 80° or 90° Fahr., while an oil which flashes at 100° will not burn below 110° to 125° Fahr.

During the year ending December 1, 1870, their Inspector, Mr. Elbert Robertson, had tested 2,750 samples, of which 2,446, or 89 per cent., did not take fire and burn at a temperature below 100° Fahr., and were, consequently, reported good. Nearly all of these, however, evolved an inflammable vapor at a temperature below 100° Fahr., and

were consequently unsafe, according to the standard adopted by the Board of Health ordinance. This latter is also the standard which is conventional among oil dealers (in theory, at least, though rarely reached in practice). It is also the legal standard in Great Britain. In the State of Ohio and in the city of New Orleans the standard is still higher, being 110° Fahr. for the flashing point, no regard being paid to the burning test.

As an officer of the Department of Health, I have been invited to visit the Bureau of Combustibles, where the tests are made for the Fire Commissioners, and to consult with their counsel, Col. T. Bailey Meyers, as to the best system for the suppression of the traffic in dangerous oils. An amended fire law for the city of New York, suggested by the Fire Commissioners, has been passed by the Legislature, and has, I believe, received the signature of the Governor.

I am sorry to see that some of the most important provisions of the bill have been stricken out during its passage through the Legislature, specially those which authorized a suit for actual damages to be brought against a party for selling oil below standard, and those which defined the death of a person from oil below the standard as manslaughter, the seller to be punished for this crime under the statutes.

ADVANTAGE OF THE INVESTIGATIONS.

While the Health Department has not been permitted to enforce the ordinance against unsafe oils, its work in this direction has been of the greatest importance to the country. It was the first systematic effort that was made to put a stop to the frightful accidents which had become so common, and which most people believed to be a necessary attendant upon the new light. We showed that this was not the case, and our facts and arguments have been made the basis of action in many different localities. The reports have appeared in chemical and medical journals in England, France, and Germany, as well as in many of the newspapers and journals in this country.

We are constantly receiving inquiries as to the best action to be taken to prevent the sale, or the best methods to be used in detecting the dangerous oils.

LAWS REGULATING THE SALE OF INFLAMMABLE OILS

The necessity of protecting the public from the ignorance or criminal cupidity of the dealers in dangerous kerosene and naphtha, has already led to the enactment of laws in many localities.

ENGLAND.

In England, as early as 1862, a law was enacted by Parliament regulating the safe-keeping of petroleum. This law fixes the test by pronouncing all oils dangerous which *give off an inflammable vapor at a temperature of less than one hundred degrees of Fahrenheit thermometer.*

In 1868, the act was amended, and a schedule of directions for applying the test was incorporated in the amended law.

A despatch from London, dated February 22, 1871, stated that, "in view of the many shocking accidents caused by petroleum, laws have been projected for subjecting it to still severer tests. A bill will soon be brought before Parliament looking to this end."

In June, 1871, a petroleum bill was passed consolidating and amending the previous enactments.

THE UNITED STATES CONGRESS.

A section in the Internal Revenue Act of March 2, 1867 (14 Statutes at Large, 484), relates to the subject of dangerous kerosene, benzine, etc.; it reads as follows:

ILLUMINATING OILS.

SECTION 29. *And be it further enacted,* That no person shall mix for sale naphtha and illuminating oils, or shall knowingly sell or keep for sale or offer for sale such mixture, or shall sell or offer for sale oil made from petroleum for illuminating purposes, inflammable at less temperature or fire test than 110° Fahrenheit, and any person so doing shall be held to be guilty of a misdemeanor, and on conviction thereof, by indictment or presentment, in any court of the United States having competent jurisdiction, shall be punished by a fine of not less than \$100 nor

more than \$500, and by imprisonment for a term of not less than six months nor more than three years.

In the case of the *United States v. De Witt*, the opinion was delivered by Chief Justice Chase, that this section was merely a police regulation, relating exclusively to the internal trade of the States; and that accordingly it can only have effect when the legislative authority of Congress excludes, territorially, all State legislation, as for example in the District of Columbia. Within State limits it can have no Constitutional operation (9 Wallace, U. S. Reports, 1870, p. 41).

In January, 1869, Mr. Moorhead introduced a bill in the House of Representatives "To provide for the better security of life and property from the dangers of coal oil, crude petroleum and their products, and for other purposes." This bill did not pass, for the reason, I believe, that it was decided that the matter must be regulated by State or municipal authority.

In February, 1870, a general order was promulgated from the War Department, which provides that "hereafter no volatile oils will be issued or used for illuminating purposes at military posts, and all varieties of coal oil will be regarded as volatile. In general, lard oil will be supplied."

THE STATES.

The following States have already passed laws for the regulation of the sale, etc., of petroleum oils.

Maine, 1867.—The act provides for inspectors for all towns and cities with more than two thousand inhabitants; fixes the standard of safety at 120° F. Oils igniting or exploding below that temperature to be marked "unsafe." Penalty for selling oil below the standard, or which has not been inspected, a fine of not more than five hundred dollars, or imprisonment not to exceed six months. Prosecutions to be by indictment; the select-men of towns, and the mayor, aldermen, and police of cities to have the right to examine all oils and fluids kept for sale.

Vermont, 1868.—The act provides for inspectors, fixes the fire test at 110° F., forbids the sale of oils below this standard under penalty of a fine of \$100, or imprisonment not to exceed one month, or both; makes the seller liable for any damage resulting from oil unlawfully sold; the

unsafe oil to be confiscated ; village, town, or city officers to prosecute offenders.

Massachusetts, 1869.—The act provides for inspectors for towns and cities with more than 1,500 inhabitants, fixes flashing point of safe oil at 100° F., and igniting point at 110° F.; fixes penalty at fine not to exceed \$100, or imprisonment not to exceed one month, or both; makes seller of oil below standard liable for damages resulting from explosion or ignition of unsafe oil, forbids all oil below standard, brands all oils below standard “unsafe,” requires all petroleum products to be inspected, regulates storage, etc.

Rhode Island, 1871.—The act forbids selling or keeping for sale oil, etc., which flash or inflame at a temperature below 110° F., provides for inspection, for branding fire test on package, fixes the penalty for violation of the act at a fine not to exceed \$500, or imprisonment not to exceed six months. This act does not prevent the regulation of the subject by city or town ordinances, and provides that the act shall not apply to oils already inspected under such ordinances.

The city of Providence has its own local ordinances on the same subject, adopting the same standard of safety, but limiting penalty to not more than \$200, or imprisonment not longer than six months.

Pennsylvania, 1865.—An act for the better security of Philadelphia, etc. This act relates entirely to the manufacture and storage of petroleum products, without reference to quality.

1868.—This act regulates the sale of refined petroleum, kerosene, etc., in the city and county of Philadelphia. It provides for inspection, and fixes the fire test at 110° F. The penalty for selling oil which has not been inspected or which is below the standard is a fine of not more than \$500, or imprisonment for not more than one year; the oils to be at the same time forfeited.

1868. An act extending the provisions of the last act to the counties of Montgomery and Schuylkill.

1869. An act to authorize the Governor to appoint an inspector of oils for the county of Lancaster.

1870. An act to limit the inspection in Lancaster county to oils which are to be sold there, etc.

Maryland, 1871.—This act fixes the standard of safety at 110° F. for the burning test, and requires the stamping of the quality on the

package, under penalty of confiscation. In case of accident from oil below the standard, the seller may be fined or imprisoned, or both, at the discretion of the court. Gasolene is excepted from the provisions of the act.

Ohio, 1867.—The act provides for the inspection of oil, and branding of the packages as “rejected for illuminating purposes” when the oil is below the standard.

The penalty for selling oils which have not been inspected, or which have been rejected as unsafe, is a fine not to exceed five hundred dollars, or imprisonment for not more than six months, or both. Any person who shall violate or neglect any of the provisions of the act may be liable for any damages sustained by the ignition of the oil, and in case a death result shall be punished for manslaughter.

Illinois, 1869.—The act provides for the appointment of inspectors, the testing of oils, and branding of the packages as “approved” or “condemned,” with the actual fire test. The standard is fixed at 110° F., at which temperature the oil shall not ignite or explode. The penalty for selling oils which have not been inspected, or which are below the standard, is a fine of not more than one hundred dollars, or imprisonment for not more than one month, or both. The seller of unsafe oil is made liable for any damages which may result from an explosion or fire.

The Board of Health of Chicago passed an ordinance in 1870, making it unlawful to sell any oil, kerosene, petroleum, burning fluid, or other fluid for illuminating purposes, without attaching to the package or can a *caution*, in which persons are warned not to use the oil for lighting fires, not to fill the lamp while burning, etc. The ordinance also required every dealer in illuminating oils to register his name and place of business with the Board. The penalty for violating the ordinance being a fine from five to five hundred dollars.

Indiana, 1863.—The act provides for the inspection of oils and branding of packages as “approved” or “rejected.” The standard is fixed at 100° F. for the flashing point of the oil. The penalty for violating the act is a fine of from \$100 to \$500, or imprisonment not to exceed six months, or both.

Georgia, 1870.—The act fixes the “fire test” at 110° F. The penalty for selling oil below this standard is from \$100 to \$500, one-half

the fine to go to the informer, one-fourth to the inspector, one-fourth to the county treasury.

Michigan, 1869.—The act provides for the appointment of inspectors for each county. It fixes the standard of safety at 110° F. for the flashing test, and makes the penalty for selling oil below this standard a fine not to exceed five hundred dollars. In 1871 this act was amended, its essential features being, however, preserved.

Missouri, 1870.—The act provides for the appointment of inspectors for cities and towns, fixes the standard of safety at 100° F. for the burning test, requires the quality of oils to be branded upon the packages, and makes the penalty for selling oil which has not been inspected a fine not to exceed three hundred dollars.

Louisiana.—The Board of Health of New Orleans has been most active in its efforts to break up the traffic in dangerous illuminating oils. During the year 1869 there were fifty deaths in the city from burns, mostly by kerosene and other oils. Early in 1870 an ordinance was passed making it unlawful to sell oils which would not stand a flashing test of 110° F., and a burning test of 120° F. This was subsequently amended so as to require every package of oil sold to be marked with the quality and name of seller, etc. The penalty for violating the ordinance was fixed at fifty dollars.

To bring the matter home to every citizen, the Board issued a short circular containing the amended ordinance, and a few statements with regard to dangerous oils, which was distributed throughout the city.

The Board also prepared a draft of a State law for regulating the sale of petroleum oils, though I do not know whether it has been as yet enacted. This act has some features not contained in any of the State acts already mentioned. It fixes the flashing point of 110° F. as the standard of safety; provides for the inspection and branding of packages; fixes the penalty for selling *kerosene oil* below the standard, or which has not been inspected, at not to exceed two hundred dollars; fixes the penalty for selling *benzine*, *naphtha*, or *gasolene*, as illuminating oil, at five dollars to five hundred dollars; and provides that persons may be restrained by injunction during the progress of any suit under this act, from doing or suffering to be done any of the acts on account of which such action is brought.

[OFFICIAL.]

CIRCULAR ISSUED TO THE CITIZENS OF NEW ORLEANS.

*Board of Health and Coal Oils.*OFFICE BOARD OF HEALTH, STATE OF LOUISIANA, }
NEW ORLEANS, July 2, 1870. }

Whereas, The frequency of accidents from the use of oils and fluids produced from coal and petroleum, has rendered it necessary, in the belief of the Board of Health, that the public should be advised as to which of said oils and fluids it deems *dangerous* for common use, and which it considers *safe*; and thus, as far as possible, protect the citizen, the said Board publishes: That it considers no such oil or fluid safe whose flashing point is below 110 degrees Fahrenheit; that is, that no such oil or fluid which gives off an inflammable gas or vapor at a lower temperature than 110 degrees Fahrenheit is safe from explosion, or from its readiness to take fire. There are many such oils and fluids which are inflammable at all temperatures, and this Board considers such oils and fluids dangerous, principally and specially from their excessive inflammability, while explosions from such highly inflammable oils and fluids occur infrequently. Such oils or fluids as these, if used at all, should be used with great care and never be left in the hands of children; nor should they be used except in metallic lamps. These oils and fluids are generally, unless artificially colored, without color, and look like water. These are the lighter products of coal and petroleum.

Between these highly inflammable oils and fluids and the safe oils is another class of oils or fluids, generally of a yellowish color, dangerous both from their inflammability and liability to explosion. These classes include a very large proportion of all the oils and fluids sold in our markets, and the public is cautioned to avoid the use of them entirely. All lamps should be filled every day, by daylight. Most explosions occur when the lamp is but partly filled.

While this Board has adopted the "flashing point 110 degrees Fahrenheit," as the lowest standard practically safe from most ordinary accidents, it does not wish to be understood to imply that even with oils or fluids at or above the standard great care or caution should not be used. It is however the standard adopted by several of the States. The Board specially cautions the public against the use of oil or fluid, produced from coal or petroleum, which is marked below "Board of Health standard flashing point" 110 degrees.

Of the eleven accidents officially reported upon to the Board of Health since May 26, three were caused by oils liable both to take fire and explode; and eight were caused by fluids of the class dangerous by reason of excessive inflammability.

C. B. WHITE, M.D.,
*President.*S. C. RUSSELL, M.D., *Secretary.*

OFFICE OF BOARD OF HEALTH,
No. 159 CANAL STREET, NEW ORLEANS, }
July 3, 1870.

At a meeting of the Board of Health of the State of Louisiana, held on Friday, the 1st day of July, 1870, it was

Resolved, That section twenty-two of the sanitary ordinance, adopted by this Board on the 18th day of May, 1870, be amended and re-enacted so as to read as follows :

SEC. 22. It shall hereafter be unlawful for any person or persons, firm or corporation, to sell, give, or deliver (except as common carrier) any kerosene oil or other illuminating oil or oils, or any illuminating fluid or fluids, derived wholly or in part from coal or petroleum, except in the manner hereinafter specified; that is, if the quantity so sold, given, or delivered, shall exceed five gallons in amount, the person or persons, firm or corporation, making such sale, gift, or delivery, shall before actual delivery thereof, place, or cause to be placed, such oil or oils, fluid or fluids, in wooden casks or metallic vessels, of such quality and structure as to be thoroughly tight and secure; if, however, the quantity so sold, given or delivered, shall not exceed five gallons in amount, then the person or persons, firm or corporation, making such sale, gift or delivery, shall, before actual delivery thereof, place, or cause to be placed, such oil or oils, fluid or fluids, in tin or other metallic vessels, which shall be thoroughly tight and secure; and any person or persons, firm or corporation, making any such sale, gift or delivery (except as a common carrier), shall, before actual delivery thereof, whatever the amount of such sale, gift or delivery may be, attach or cause to be attached securely to the cask or vessel containing such oil or oils, fluid or fluids so sold, given or to be delivered, a card, label or tag, upon which shall be printed in plain type, not less than three-eighths of an inch in height, the correct name and brand of such oil or oils, fluid or fluids, in such cask or vessel contained; also, the words and figures following: "Inflammable at — degrees, Fahrenheit" (naming the degrees), or "Inflammable at any temperature" (as the case may be); also, the words and figures following: "Explosive at — degrees," (naming the degrees), or "non-explosive" (as the case may be); also, the words following: "Board of Health standard flashing point, 110 degrees." There shall also be upon said card, label or tag, the name of the person or persons, firm or corporation, making such sale, gift or delivery, with the street and number where such person or persons, firm or corporation does business. Any person or persons, firm or corporation, making any sale, gift or delivery of any such oil or oils, fluid or fluids, otherwise than hereinbefore specified, shall be liable to a penalty not exceeding fifty dollars; and any person or persons, firm or corporation neglecting or failing to attach or cause to be attached securely, to the cask or vessel containing any such oil or oils, fluid or fluids, the card, label or tag as aforesaid, or to place thereon the words and figures, as hereinbefore specified, shall be liable to a penalty not exceeding fifty dollars; and any person or persons, firm or corporation, who shall attach or suffer to be attached to any such cask or vessel, any card, label or tag which shall not be, in all respects, a true representation of the contents of such cask or vessel, or which shall not be true in every respect, shall be liable to a penalty of fifty dollars. The acts and doings of employés of any person or persons, firm or corporation, in all the matters and

things referred to in this section, shall be considered as the acts and doings of such person or persons, firm or corporation. This section shall not be construed as applicable to actual sales, gifts or deliveries of oil or oils, fluid or fluids, to be shipped beyond the territory included in the district under the sanitary control of the Board of Health.

C. B. WHITE, M.D.,

President.

S. C. RUSSELL, M.D., *Secretary.*

New York, 1865.—Chapter 773, of the laws of this year, regulates the storage of petroleum, etc., in cities. The act says no refined petroleum shall be kept on sale or stored in any city, the fire test of which is below 100° F. It orders the inspection and stamping of barrels, fixes the penalty of violating the act from \$50 to \$500, requires mayor and councils to pass ordinances enforcing the act, authorizes the Inspector of Buildings of New York City to appoint three inspectors, and to prosecute offenders, etc. The Fire Marshal's bill, passed at the last session of 1871, is presented further on.

This act is limited in its action to the city of New York. It fixes a flashing point of 100° F. as the standard of safety; provides for licensing all dealers in illuminating oils, and makes the penalty for selling oils below the standard at \$50.

While the city of New York is protected to a certain extent by this act, the rest of the State is still at the mercy of the venders of unsafe kerosene and naphtha.

STATES STILL WITHOUT LEGISLATION ON DANGEROUS OILS.

The Secretaries of the following States inform me that no laws have yet been enacted by their respective legislatures on this subject:

New Jersey, Delaware, Virginia, West Virginia, South Carolina, Alabama, Florida, Louisiana, Tennessee, Mississippi, Arkansas, Wisconsin, Iowa, Minnesota, Nebraska, Kansas, Texas, Nevada, California, Oregon. To this list should be added New York, as the present laws are very imperfect or local.

STATES IN WHICH LAWS ALREADY EXIST WITH REGARD TO DANGEROUS OILS.

The following States have already enacted laws to regulate the sale of dangerous oils: Maine, Vermont, Massachusetts, Rhode Island, Pennsylvania, Maryland, Ohio, Illinois, Indiana, Georgia, Michigan, Missouri.

STATES NOT HEARD FROM

New Hampshire, Connecticut, North Carolina, and Kentucky.

WHAT ACTION IS NECESSARY TO PROTECT THE PUBLIC FROM DANGEROUS OILS.

First.—The public must be educated to a proper understanding of the properties of petroleum and its products. The facts must be disseminated in every possible way. The most effective agents will, of course, be the newspapers, but in every city, town, and village, the authorities should issue short and clear statements in the form of circulars. This was done in New Orleans with excellent results. When the people are fully informed on the subject they will not purchase dangerous oils, and the venders of naphtha will go out of business for want of customers.

Second.—The Legislature of each State should pass a stringent law, with severe penalties, to regulate the sale of petroleum products.

The following copies of the laws already alluded to are given to serve as guides in framing proper acts for regulating the sale of petroleum and coal oils:

ENGLAND.

AN ACT for the safe-keeping of petroleum.—(29th July, 1862.)

WHEREAS, it is expedient to provide for the safe-keeping of petroleum and certain products thereof that are dangerous to life and property, from their properties of giving off inflammable vapors at low temperature: *Be it enacted* by the Queen's most excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

1. "Petroleum," for the purposes of this act, shall include any product thereof that gives off an inflammable vapor at a temperature of less than one hundred degrees of Fahrenheit's thermometer.

"Borough" shall in England mean any place for the time being subject to the provisions of the act of the session holden in the fifth and sixth years of King William the Fourth, chapter seventy-six, entitled An Act to Provide for the Regulation of Municipal Corporations in England and Wales; and in Scotland any royal burgh and any of the burghs or towns returning or contributing to return members to Parliament; and in Ireland any place for the time being subject to the provisions of the act of the session holden in the third and fourth years of Her Majesty, chapter one hundred and eight, entitled An Act for the Regulation of Municipal Corporations in Ireland.

“ Harbor ” shall include any port, dock, navigable river, pier, or other works in or at which vessels ship or discharge goods or passengers.

“ Harbor authority ” shall include all persons, or bodies of persons, corporate or unincorporate, being proprietors of or entrusted with the duty of improving, maintaining, or managing any harbor.

2. Every vessel carrying a cargo consisting wholly or in part of petroleum, on entering any harbor within the United Kingdom, shall conform to such regulations in respect to the place at which she is to be moored as may from time to time be issued by the harbor authority having jurisdiction over such harbor. If any vessel is moored in any place in contravention of such regulations, the owner or master of such vessel shall incur a penalty not exceeding twenty pounds for each day during which the vessel remains moored, and it shall be lawful for the harbor master, or any other person acting under the orders of the harbor authority, to cause such vessel to be removed, at the expense of the owner thereof, to such place as may be in conformity with the said regulations, and all expenses incurred in such removal may be recovered in the same manner in which penalties are hereby made recoverable.

3. From and after the first day of October, one thousand eight hundred and sixty-two, not more than forty gallons of petroleum shall be kept within fifty yards of a dwelling house, or of a building in which goods are stored, except in pursuance of a license given by such local authority as is hereinafter mentioned.

Any petroleum kept in contravention of this section shall be forfeited, and, in addition thereto, the occupier of the place in which such petroleum is kept shall incur a penalty not exceeding twenty pounds a day for each day during which petroleum is kept in contravention of this act.

4. The following bodies shall respectively be the local authority to grant licenses under this act in the districts hereinafter mentioned (that is to say),

1. In the city of London, except as hereinafter mentioned, the Court of Lord Mayor and Aldermen of the said city.
2. In the metropolis, as defined by the act of the session of the eighteenth and nineteenth years of the reign of Her present Majesty, chapter one hundred and twenty, except the city of London, and except as hereinafter mentioned, the Metropolitan Board of Works.
3. In any borough in England or Ireland, except as hereinafter mentioned, the Mayor, Aldermen, and Burgesses, by the council.
4. In any place in England or Ireland, except as hereinafter mentioned, within the jurisdiction of any trustees or improvement commissioners, appointed under the provisions of any local or general act of Parliament, the trustees or commissioners.
5. In any burgh or place in Scotland, except as hereinafter mentioned, within the jurisdiction of any town council, and not subject to the jurisdiction of police commissioners or trustees, the town council; but in any burgh or place in Scotland, except as hereinafter mentioned, within the jurisdiction of police commissioners, or trustees exercising the functions of police commissioners under any general or local act, the police commissioners or trustees.

6. In any harbor within the jurisdiction of a harbor authority, whether situate or not within the jurisdiction of any local authority hereinbefore mentioned, the harbor authority to the exclusion of any other local authority.

7. In any place in England or Ireland in which there is no local authority as hereinbefore defined, the justices in petty sessions assembled, and in Scotland any two justices of the peace for the county.

5. Licenses in pursuance of this act shall be valid if signed by two or more of the persons constituting the local authority, or executed in any other way in which other licenses, if any, granted by such authority, are executed; they may be granted for a limited time, and there may be annexed thereto any conditions as to renewal or otherwise which the local authority thinks necessary for diminishing the risk of damage from explosion or fire; and any licensee violating any of the conditions of his license shall be deemed to be an unlicensed person.

6. If, on any application for a license under this act, the local authority refuses the license, or grants the same only on conditions with which the applicant is dissatisfied, the local authority shall, if required by the applicant, certify in writing under the hand or hands of one or more of the persons constituting the local authority the grounds on which it refused the license or annexed conditions to the grant thereof, and shall deliver the certificate to the applicant, who may thereupon, within ten days from the time of the delivery thereof, transmit the same to one of Her Majesty's principal Secretaries of State, if the application is for a license in England or Scotland, and to the Lord Lieutenant or other chief governor, if the application is for a license in Ireland, together with a memorial praying that, notwithstanding such refusal, the license may be granted, or that such conditions may not be imposed, or may be altered or modified in such manner and to such extent as may be set forth in such memorial; and it shall be lawful for the Secretary of State, Lord Lieutenant, or other chief governor, if he think fit, on consideration of such memorial and certificate, and if he think it necessary or desirable, after due inquiry from and a report by such person as he may appoint for that purpose, to grant the license prayed for, either absolutely, or with such conditions as he thinks fit, or to alter or modify the conditions imposed by the local authority; and the license so granted, or altered and modified, as the case may be, when certified under the hand of the said Secretary of State, Lord Lieutenant, or other chief governor, shall be to all intents as valid as if granted by the local authority.

7. Any forfeiture or penalty for an offence against this act may be enforced in England and Ireland upon summary conviction before any two justices; and one moiety of the forfeiture and penalty shall belong to Her Majesty, and the other moiety to the informer, unless the informer is a servant of the person informed against, in which case the moiety of the forfeiture or penalty which would otherwise belong to the informer shall be applied in such manner and to such other purposes as the justices in their or his discretion may think fit.

8. Any forfeiture or penalty for an offence against this act may be enforced in Scotland upon summary conviction, at the instance of the procurator fiscal, before any sheriff, or before any two justices of the county, or before the magistrates or any police magistrate of the burgh in which the offence was committed, who may sentence the offender to imprisonment, until such forfeiture or penalty and the expenses of conviction

are paid, for a period not exceeding three months; and one moiety of such forfeiture or penalty shall belong to Her Majesty, and the other moiety shall be applied in such manner and to such purposes as such sheriff, justices, magistrates, or magistrate, in their or his discretion may think fit.

9. Petroleum may be searched for in the same manner, under the same warrants, and subject to the same conditions in, under, and subject to which gunpowder may be searched for, in pursuance of the act passed in the session holden in the twenty-third and twenty-fourth years of the reign of Her present Majesty, chapter one hundred and thirty-nine; and all the provisions of the said act relating to searching for gunpowder shall be incorporated with this act, and be construed as if the word "gunpowder" in such provisions included petroleum as defined by this act, and as if the act therein referred to were this act.

10. All powers given by this act shall be deemed to be in addition to and not in derogation of any other powers conferred on any local authority by act of Parliament, law, or custom; and the local authority may exercise such other powers in the same manner as if this act had not passed; and nothing in this act contained shall be deemed to exempt any person from any penalty to which he would otherwise be subject in respect of a nuisance.

AN ACT to amend the Act twenty-fifth and twenty-sixth Victoria, chapter sixty-six, for the safe keeping of petroleum.—(13th July, 1868.)

WHEREAS, it is expedient to make further provisions for the safe keeping of petroleum and other substances of like nature.

Be it enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

1. This act may be cited for all purposes as "The Petroleum Act, 1868."
2. This act, so far as is consistent with the tenor thereof, shall be read as one with the act of the session holden in the twenty-fifth and twenty-six years of the reign of Her present Majesty, chapter sixty-six, intituled an act for the safe keeping of petroleum, and the said act may be cited for all purposes as "The Petroleum Act, 1862," and this act and the said act may be cited together as "The Petroleum Acts, 1862, 1868."
3. For the purposes of the petroleum acts, 1862, 1868, including all local acts and by-laws relating to petroleum or the produce thereof, "petroleum" shall include all such rock oil, Rangoon oil, Burmah oil, any product of them, and any oil made from petroleum, coal, schist, shale, peat, or other bituminous substance, and any product of them, as gives off an inflammable vapor at a temperature of less than one hundred degrees of Fahrenheit's thermometer.
4. From and after the first day of February, one thousand eight hundred and sixty-nine, the third section of the petroleum act, 1862, shall be repealed; provided that such repeal shall not affect any liability or penalty incurred in respect of any offence committed before the passing of this act, or any legal remedy for enforcing or recovering such liability or penalty.

From and after the first day of February, one thousand eight hundred and sixty-nine, no petroleum shall be kept, otherwise than for private use, within fifty yards of a dwelling house or of a building in which goods are stored, except in pursuance of a license given in accordance with the petroleum act, 1862.

There may be annexed to any such license such conditions as to the mode of storage, as to the nature of the goods with which petroleum may be stored, as to the testing such petroleum ^mfrom time to time, and generally as to the safe keeping of petroleum, as may seem expedient to the local authority.

Any petroleum kept in contravention of this section shall be forfeited, and in addition thereto the occupier of the place in which such petroleum is kept shall be liable to a penalty not exceeding twenty pounds a day for each day during which petroleum is kept in contravention of the petroleum acts, 1862 and 1868, or either of such acts.

5. No person shall sell or expose for sale for use within the United Kingdom any description of petroleum from and after the first day of February, one thousand eight hundred and sixty-nine, which gives off an inflammable vapor at a temperature of less than one hundred degrees of Fahrenheit's thermometer, unless the bottle or vessel containing such petroleum have attached thereto a label in legible characters stating as follows: "Great care must be taken in bringing any light near to the contents of this vessel, as they give off an inflammable vapor at a temperature of less than one hundred degrees of Fahrenheit's thermometer." Any person acting in contravention of this section shall for each offence be subject to a penalty not exceeding five pounds.

6. It shall be lawful for any Inspector of Weights and Measures, or other person or persons duly appointed to inspect weights and measures under the act twenty-second and twenty-third Victoria, chapter fifty-six, and the acts therein recited, at all reasonable times to inspect and test all petroleum kept, offered, or exposed for sale; and if upon such inspection and test any description of petroleum shall be found kept or offered or exposed for sale as aforesaid contrary to the provisions of this act or of the petroleum act, 1862, the same shall be liable to be seized and, upon conviction, forfeited, and such person so examining the same shall retain a sample thereof, and the person or persons so offending shall be liable for any such offence to any penalty not exceeding five pounds: provided always, that if the person or persons in whose possession such petroleum shall be found as aforesaid shall claim to have a further test made on their behalf, the magistrate before whom complaint of the said offence may be laid shall call before him the public analyst provided by the second section of the act twenty-third and twenty-fourth Victoria, chapter eighty-four, or, if no such analyst has been provided, some other person having competent chemical knowledge, who shall test a portion of the sample so retained as aforesaid in the manner hereinafter provided, and shall give evidence of the result of such test; and the magistrate shall direct payment to be made to the analyst of a sum not less than two shillings and sixpence nor more than ten shillings and sixpence; and in case of conviction the person convicted shall pay the cost of such analysis, and in case of acquittal such cost shall be paid in the manner provided for the payment of expenses by section twelve of the said act of the twenty-third and twenty-fourth Victoria.

7. All offences under the petroleum acts, 1862, 1868, may be tried as police offences by any magistrate acting under any general or local police act, and all forfeitures and

penalties incurred under the petroleum acts, 1862, 1868, may be disposed of, recovered, and applied in the manner authorized by such general or local police act.

8. The temperature at which petroleum gives off an inflammable vapor shall, for the purposes of the petroleum acts, be tested in manner set forth in the schedule hereto.

Schedule.

DIRECTIONS FOR APPLYING THE FLASHING TEST TO SAMPLES OF PETROLEUM OIL.

The vessel which is to hold the oil shall be of thin sheet iron; it shall be two inches deep and two inches wide at the opening, tapering slightly toward the bottom; it shall have a flat rim, with a raised edge one quarter of an inch high round the top; it shall be supported by this rim in a tin vessel four inches and a half deep and four and a half inches in diameter; it shall also have a thin wire stretched across the opening, which wire shall be so fixed to the edge of the vessel that it shall be a quarter of an inch above the surface of the flat rim. The thermometer to be used shall have a round bulb about half an inch in diameter, and is to be graduated upon the scale of Fahrenheit, every ten degrees occupying not less than half an inch upon the scale.

The inner vessel shall be filled with the petroleum to be tested, but care must be taken that the liquid does not cover the flat rim. The outer vessel shall be filled with cold, or nearly cold, water; a small flame shall be applied to the bottom of the outer vessel, and the thermometer shall be inserted into the oil so that the bulb shall be immersed about one and a half inches beneath the surface. A screen of pasteboard or wood shall be placed round the apparatus, and shall be of such dimensions as to surround it about two thirds, and to reach several inches above the level of the vessels.

When heat has been applied to the water until the thermometer has risen to about 90° Fahrenheit, a very small flame shall be quickly passed across the surface of the oil on a level with the wire. If no pale blue flicker or flash is produced, the application of the flame is to be repeated for every rise of two or three degrees in the thermometer. When the flashing point has been noted, the test shall be repeated with a fresh sample of the oil, using cold, or nearly cold water as before; withdrawing the source of heat from the outer vessel when the temperature approaches that noted in the first experiment, and applying the flame test at every rise of two degrees in the thermometer.

A BILL intituled An Act for the safe keeping of petroleum and other substances of a like nature.

WHEREAS, it is expedient to consolidate and amend the law relating to the safe keeping of petroleum and other substances of a like nature:

Be it enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

1. This act may be cited as "The Petroleum Act, 1871."

2. In this act, if not inconsistent with the context, the following terms have the meanings hereinafter assigned to them, that is to say:

The term "borough" means—

In England, any place for the time being subject to the provisions of the act of the session of the fifth and sixth years of the reign of King William the Fourth, chapter seventy-six, "to provide for the regulation of municipal corporations in England and Wales," and the acts amending the same;

In Scotland, any royal burgh and any burgh or town returning or contributing to return a member or members to serve in Parliament;

In Ireland, any place for the time being subject to the provisions of the act of the session of the third and fourth years of the reign of her present Majesty, chapter one hundred and eight, "for the regulation of municipal corporations in Ireland, and the acts amending the same;"

The term "person" includes a body corporate;

The term "Secretary of State" means one of her Majesty's principal Secretaries of State;

The term "Lord Lieutenant" means the Lord Lieutenant of Ireland or the lords justices or other chief governors or governor of Ireland for the time being;

The term "harbor" means any harbor properly so called, whether natural or artificial, and any port, haven, estuary, navigable river, dock, pier, jetty, or other works in or at which ships do or can ship or unship goods or passengers;

The term "harbor authority" includes any persons or person being or claiming to be proprietors or proprietor of or intrusted with the duty or invested with the power of improving, maintaining, or managing any harbor;

The term "ship" includes every description of vessel used in navigation, whether propelled by oars or otherwise;

The term "Summary Jurisdiction Acts" means as follows:

As to England, the act of the session of the eleventh and twelfth years of the reign of her present Majesty, chapter forty-three, intituled "An act to facilitate the performance of the duties of justices of the peace out of sessions within England and Wales with respect to summary convictions and orders," and any acts amending the same;

As to Scotland, "The Summary Procedure Act, 1864;"

As to Ireland, within the police district of Dublin metropolis, the acts regulating the powers and duties of justices of the peace for such district, or of the police of such district; and elsewhere in Ireland, "The Petty Sessions (Ireland) Act, 1851," and any act amending the same;

The term "Court of Summary Jurisdiction" means and includes any justice or justices of the peace, sheriff or sheriff substitute, metropolitan police magistrate, stipendiary or other magistrate, or officer, by whatever name called, to whom jurisdiction is given by The Summary Jurisdiction Acts or any acts therein referred to, or to proceedings before whom the provisions of The Summary Jurisdiction Acts are or may be made applicable;

The term "county rate" means as regards Scotland the county general assessment leviable in pursuance of "The County General Assessment (Scotland) Act, 1868."

3. For the purposes of this act the term "petroleum" includes any rock oil, Rangoon oil, Burmah oil, oil made from petroleum, coal, schist, shale, peat, or other bituminous

substance, and any products of petroleum, or any of the above-mentioned oils; and the term "petroleum, to which this act applies," means such of the petroleum so defined, as, when tested in manner set forth in schedule one to this act, gives off an inflammable vapor at a temperature of less than eighty-five degrees of Fahrenheit's thermometer.

4. Every harbor authority shall frame and submit for confirmation to the Board of Trade by-laws for regulating the place or places at which ships carrying petroleum to which this act applies are to be moored in the harbor over which such authority has jurisdiction, and are to land their cargo, and for regulating the time and mode of, and the precautions to be taken on, such landing. The harbor authority shall publish the by-laws so framed with a notice of the intention of such authority to apply for the confirmation thereof. The Board of Trade may confirm such by-laws with or without any omission, addition, or alteration, or may disallow the same.

Every such by-law when confirmed shall be published by the harbor authority, and may be from time to time altered or repealed by a by-law made in like manner. By-laws under this section shall be published in such manner as the Board of Trade may from time to time direct.

If at any time it appears to the Board of Trade that there is no by-law for the time being in force under this section in any harbor, the Board of Trade may, by notice, require the harbor authority of such harbor to frame and submit to them a by-law for the purposes of this section, and if such harbor authority make default in framing a by-law and obtaining the confirmation thereof within the time limited by such notice, the Board of Trade may make a by-law for the purposes of this section, and such by-law shall have the same effect as if it had been framed by the harbor authority and confirmed by the Board of Trade.

Where any ship or cargo is moored, landed, or otherwise dealt with in contravention of any by-law for the time being in force under this act in any harbor, the owner and master of such ship, or the owner of such cargo, as the case may be, shall each incur a penalty not exceeding fifty pounds for each day during which such contravention continues, and it shall be lawful for the harbor master, or any other person acting under the orders of the harbor authority of such harbor, to cause such ship or cargo to be removed, at the expense of the owner thereof, to such place as may be in conformity with the said by-law, and all expenses incurred in such removal may be recovered in the same manner in which penalties are by this act made recoverable.

5. The owner or master of every ship carrying a cargo consisting wholly or in part of petroleum, to which this act applies, on entering any harbor within the United Kingdom, shall give notice of the nature of such cargo to the harbor authority having jurisdiction over such harbor.

If such notice is not given, the owner and master of such ship shall each incur a penalty not exceeding the value of such ship and cargo.

6. Where any petroleum to which this act applies—

- (a) Is kept at any place except during the seven days next after it has been imported ;
or
- (b) Is sent or conveyed by land or water between any two places in the United Kingdom ; or
- (c) Is sold or exposed for sale ;

the vessel containing such petroleum shall have attached thereto a label in conspicuous characters, stating the description of the petroleum, with the addition of the words "dangerously inflammable," and with the addition—

- (a) In the case of a vessel kept, of the name and address of the consignee or owner;
- (b) In the case of a vessel sent or conveyed, of the name and address of the sender;
- (c) In the case of a vessel sold or exposed for sale, of the name and address of the vendor.

All petroleum to which this act applies which is kept, sent, conveyed, sold, or exposed for sale, in contravention of this section, shall, together with the vessel containing the same, be forfeited, and in addition thereto, the person keeping, sending, selling, or exposing for sale the same, shall for each offence be liable to a penalty not exceeding five pounds.

7. Save as hereinafter mentioned, after the passing of this act, petroleum to which this act applies shall not be kept, except in pursuance of a license given by such local authority as is in this act mentioned.

All petroleum kept in contravention of this section shall, together with the vessel containing the same, be forfeited, and in addition thereto, the occupier of the place in which such petroleum is so kept shall be liable to a penalty not exceeding twenty pounds a day for each day during which such petroleum is so kept.

This section shall not apply to any petroleum kept either for private use or for sale, provided the following conditions are complied with :

- (1) *That it is kept in separate glass, earthenware, or metal vessels, each of which contains not more than half a pint, and is securely stopped ;*
- (2) *That the aggregate amount kept, supposing the whole contents of the vessels to be in bulk, does not exceed three gallons.*

8. The following bodies shall respectively be the local authority to grant licenses under this act in the districts hereinafter mentioned ; (this is to say),

- (1) In the city of London, except as hereafter in this section mentioned, the Court of the Lord Mayor and aldermen of the said city ;
- (2) In the metropolis (that is in places for the time being within the jurisdiction of the Metropolitan Board of Works under "The Metropolis Management Act, 1855"), except the city of London, and except as hereafter in this section mentioned, the Metropolitan Board of Works ;
- (3) In any borough in England or Ireland, except as hereafter in this section mentioned, the mayor, aldermen, and burgesses acting by the council ;
- (4) In any place in England or Ireland, except as hereafter in this section mentioned, within the jurisdiction of any trustees or improvement commissioners, appointed under the provisions of any local or general Act of Parliament, and not being a borough, or comprising any part of a borough, the trustees or commissioners ;
- (5) In any burgh in Scotland, except as hereafter in this section mentioned, the town council ;

- (6) In any place in Scotland, except as hereafter in this section mentioned, within the jurisdiction of police commissioners, or trustees exercising functions of police commissioners, under any general or local act, and not being a burgh, or comprising any part of a burgh, the police commissioners or trustees;
- (7) In any harbor within the jurisdiction of a harbor authority, whether situate or not within the jurisdiction of any local authority before in this section mentioned, the harbor authority, to the exclusion of any other local authority;
- (8) In any place in which there is no local authority as before in this section defined, in England or Ireland, the justices in petty sessions assembled, and in Scotland any two or more justices of the peace for the county, sitting as judges in the justice of peace court.

9. Licenses in pursuance of this act shall be valid, if signed by two or more of the persons constituting the local authority, or executed in any other way in which other licenses, if any, granted by such authority, are executed. Licenses may be granted for a limited time, and may be subject to renewal or not, in such manner as the local authority think necessary.

There may be annexed to any such license such conditions as to the mode of storage, the nature and situation of the premises in which, and the nature of the goods with which petroleum to which this act applies is to be stored, the facilities for the testing of such petroleum from time to time, the mode of carrying such petroleum within the district of the licensing authority, and generally as to the safe keeping of such petroleum as may seem expedient to the local authority.

Any licensee, violating any of the conditions of his license, shall be deemed to be an unlicensed person. There may be charged, in respect of each license granted in pursuance of this act, such sum, not exceeding five shillings, as the local authority may think fit to charge.

10. If, on any application for a license under this act, the local authority refuse the license, or grant the same only on conditions with which the applicant is dissatisfied, the local authority shall, if required by the applicant, deliver to him in writing, under the hand or hands of one or more of the persons constituting the local authority, a certificate of the grounds on which they refused the license or annexed conditions to the grant thereof.

The applicant, within ten days from the time of the delivery of the certificate, may transmit the same to a Secretary of State, if the application is for a license in England or Scotland, and to the Lord Lieutenant, if the application is for a license in Ireland, together with a memorial, praying that notwithstanding such refusal the license may be granted, or that the conditions may not be imposed, or may be altered or modified, in such manner and to such extent as may be set forth in such memorial.

It shall be lawful for the Secretary of State, or the Lord Lieutenant, if he think fit, on consideration of such memorial and certificate, and, if he think it necessary or desirable, after due inquiry, and a report by such person as he may appoint for that purpose, to grant the license prayed for, either absolutely or with such conditions as he thinks fit, or to alter or modify the conditions imposed by the local authority; and the license so granted, or altered and modified, as the case may be, when certified under the hand of

a Secretary of State, or the Lord Lieutenant, shall be to all intents as valid as if granted by the local authority.

11. Any officer authorized by the local authority may purchase any petroleum from any dealer in it, or may, on producing a copy of his appointment, purporting to be certified by the clerk, or some member of the local authority, or producing some other sufficient authority, require the dealer to show him every or any place, and all or any of the vessels in which any petroleum in his possession is kept, and to give him samples of such petroleum on payment of the value of such samples.

When the officer has, by either of the means aforesaid, taken samples of petroleum, he may declare in writing to the dealer that he is about to test the same, or cause the same to be tested, in manner provided by this act, and it shall be lawful for him to test the same, or cause the same to be tested, at any convenient place, at such reasonable time as he may appoint, and the dealer, or any person appointed by him, may be present at the testing, and if it appear to the officer or other person so testing, that the petroleum from which such samples have been taken is petroleum to which this act applies, such officer or other person may certify such fact, and the certificates so given shall be receivable as evidence in any proceedings that may be taken against a dealer in petroleum in pursuance of this act; but it shall be lawful for a dealer proceeded against to give evidence in proof that such certificate is incorrect, and thereupon the court before which any such proceedings may be taken, may, if such court think fit, appoint some person skilled in testing petroleum to examine the samples to which such certificate relates, and to declare whether such certificate is correct or incorrect.

Any expenses incurred in testing any petroleum of such dealer, in pursuance of this section, shall, if such dealer be convicted of keeping, sending, conveying, selling or exposing for sale petroleum, in contravention of this act, be deemed to be a portion of the costs of the proceedings against him, and shall be paid by him accordingly. In any other event such expenses shall be paid by the local authority, out of any funds for the time being in their hands, and, in case the local authority are the justices, out of the county rate, as part of the expenses of such justices.

12. Any dealer who refuses to show to any officer authorized by the local authority every or any place, or all or any of the vessels in which petroleum in his possession is kept, or to give him such assistance as he may require for examining the same, or to give to such officer samples of such petroleum, on payment of the value of such samples, or who wilfully obstructs the local authority, or any officer of the local authority, in the execution of this act, shall incur a penalty not exceeding twenty pounds.

13. Where any court of summary jurisdiction is satisfied by information on oath that there is reasonable ground to believe that any petroleum to which this act applies, is being kept, sent, conveyed, or exposed for sale within the jurisdiction of such court, in contravention of this act, at any place, whether a building or not, or in any ship or vehicle, such court shall grant a warrant, by virtue whereof it shall be lawful for any person named in such warrant to enter the place, ship, or vehicle named in such warrant, and every part thereof, and examine the same and search for petroleum therein, and take samples of any petroleum found therein, and if any petroleum to which this act applies be found therein, which is kept, sent, conveyed, or exposed for sale, in contravention of this act, to seize and remove such petroleum, and the vessel containing the same, and

to detain such petroleum and vessel until some court of summary jurisdiction has determined whether the same are or not forfeited, the proceedings for which forfeiture shall be commenced forthwith after the seizure.

Any person seizing any petroleum to which this act applies, in pursuance of this section, shall not be liable to any suit for detaining the same, or for any loss or damage incurred in respect of such petroleum, otherwise than by any wilful act or neglect while the same is so detained.

If any petroleum to which this act applies is seized in pursuance of this section in any ship or vehicle, the person seizing the same may use for the purposes of the removal thereof, during twenty-four hours after the seizure, the said ship or vehicle, with the tackle, beasts, and accoutrements belonging thereto, and, if he do so, shall pay to the owner thereof a reasonable recompense for the use thereof, and the amount of such recompense shall, in case of dispute, be settled by the court of summary jurisdiction before whom proceedings for the forfeiture are taken, and may be recovered in like manner as penalties under this act may be recovered.

Any person who, by himself or by any one in his employ or acting by his direction or with his consent, refuses or fails to admit into any place occupied by or under the control of such person, any person demanding to enter in pursuance of this section, or in any way obstructs or prevents any person in or from making any such search, examination, or seizure, or taking any such samples as authorized by this section, shall be liable to pay a penalty not exceeding twenty pounds, and to forfeit all petroleum to which this act applies which is found in his possession or under his control.

14. Her Majesty may from time to time make, revoke, and vary orders in council directing this act or any part thereof to apply to any substance, and this act, or the part thereof specified in the order shall, during the continuance of the order, apply to such substance, and shall be construed and have effect as if throughout it such substance had been included in the definition of petroleum to which this act applies, subject to the following qualifications :

- (1) The quantity of any substance to which this act is directed by order in council to apply, which may be kept without a license, shall be such quantity only as is specified in that behalf in such order, or if no such quantity is specified no quantity may be kept without a license ;
- (2) The label on the vessel containing such substance shall be such as may be specified in that behalf in the order.

15. All offences and penalties under this act, and all money and expenses by this act directed to be recovered as penalties, shall be prosecuted and recovered under the provisions of the Summary Jurisdiction Acts before a court of summary jurisdiction, and all necessary powers and jurisdictions are hereby conferred on such court in Scotland.

Provided as follows :

1. A court of summary jurisdiction shall not impose a penalty exceeding fifty pounds, but any such court may impose that or any less penalty for any one offence, notwithstanding the offence involves a penalty of higher amount.
2. The " Court of Summary Jurisdiction," when hearing and determining an information or complaint, shall be constituted in some one of the following manners ; that is to say—

- (a) In England, either of two or more justices of the peace in petty sessions sitting at a place appointed for holding petty sessions, or of one of the magistrates hereinafter mentioned, sitting alone or with others at some court or other place appointed for the administration of justice; that is to say, the Lord Mayor or any alderman of the city of London, a metropolitan police magistrate, a stipendiary magistrate, or some other officer or officers for the time being empowered by law to do alone or with others any act authorized to be done by more than one justice of the peace.
- (b) In Scotland, of two or more justices of the peace sitting as judges in a justice of the peace court, or of one of the magistrates hereinafter mentioned sitting alone or with others at some court or other place appointed for the administration of justice; that is to say, the sheriff of the county or his substitute, or the provost or other magistrate of a royal burgh, or some other officer or officers for the time being empowered by law to do alone or with others any act authorized to be done by more than one justice of the peace.
- (c) In Ireland, within the police district of Dublin metropolis, one of the divisional justices of the police district of Dublin metropolis, and elsewhere of two or more justices of the peace in petty sessions, sitting at a place appointed for holding petty sessions.
- 3. The description of any offence under this act in the words of such act shall be sufficient in law.
- 4. Any exception, exemption, proviso, excuse or qualification, whether it does or not accompany the description of the offence in this act, may be proved by the defendant, but need not be specified or negatived in the information; and if so specified or negatived, no proof in relation to the matters so specified or negatived shall be required on the part of the informant or prosecutor.
- 5. No conviction or order made in pursuance of this act shall be quashed for want of form or be removed by certiorari or otherwise, either at the instance of the crown or of any private party, into any superior court. Moreover, no warrant of commitment shall be held void by reason of any defect therein, provided that there is a valid conviction to maintain such warrant, and it is alleged in the warrant that the party has been convicted.
- 6. All forfeitures may be sold or otherwise disposed of in such manner as the court may direct.

16. All powers given by this act shall be deemed to be in addition to and not in derogation of any other powers conferred on any local or harbor authority by Act of Parliament, law, or custom, and every local authority and harbor authority may exercise such other powers in the same manner as if this act had not passed; and nothing in this act contained shall be deemed to exempt any person from any penalty to which he would otherwise be subject in respect of a nuisance.

17. The acts mentioned in schedule two to this act are hereby repealed to the extent in that schedule mentioned.

Provided that such repeal shall not affect any order in council made, or any license granted, under any act hereby repealed or any liability or penalty incurred in respect of any offence committed before the passing of this act, or any remedy or proceeding for

enforcing such liability or penalty, and every such order, so far as relates to the matters provided for by this act, and every such license shall have effect as if it had been made or granted under this act.

Schedules.

SCHEDULE ONE.

DIRECTIONS FOR TESTING PETROLEUM TO ASCERTAIN THE TEMPERATURE AT WHICH IT GIVES OFF INFLAMMABLE VAPOR.

The apparatus to be employed in this test shall consist of—

(a) An outer vessel of metal to contain water, about four inches in diameter and four inches deep, so contrived that some source of heat, such as a spirit lamp or gas burner, can be applied to it to heat the water which it contains :

(b) An inner vessel of thin metal to contain the petroleum to be tested, about two inches in diameter and two inches deep, provided with an external rim or flange, above which the edge of the vessel shall rise about one-fourth of an inch, and by which it may be supported in the outer vessel so that its contents may be heated through the medium of the water.

The inner vessel for the petroleum shall be provided with a cover of thin metal fitting to the edge which rises above the rim or flange already described. This cover shall be about half an inch deep, so that its top may be half an inch above the surface of the petroleum to be tested. In the cover there must be fitted a Fahrenheit thermometer, with a spherical bulb, in the scale of which ten degrees shall occupy at least half an inch in length ; the thermometer must be placed in such a position that the bulb shall be just covered by the petroleum.

Near the front edge of the cover there shall be a circular opening, and through this the petroleum is to be tested. This opening is to be provided with a small movable cover.

In making the experiment with this apparatus, the water in the outer vessel shall in every case be heated to eighty degrees Fahrenheit before the petroleum is put into the inner vessel. When the temperature of the water has reached eighty degrees, the source of heat must be withdrawn, the inner vessel must then be filled with the petroleum to be tested up to the level of the outer rim or flange, which must be indicated by a mark on the inside, and the cover with the thermometer must be put in its place. The source of heat must now be again placed beneath the vessel containing the water, and when the temperature of the petroleum in the inner vessel has reached eighty degrees, a small light should be applied to the circular opening in the cover ; if the vapor be not ignited, that is, if no pale blue flash or flicker of light be produced, the application of the light should be repeated at about every two degrees of increase of temperature until the flash of the ignited vapor be observed, and the temperature at which the first takes place is the temperature at which that sample of petroleum gives off an inflammable vapor.

In every case a second experiment shall be made to check the results obtained in the first.

A model of the apparatus described above is deposited with the warden of the standards, and reference shall be made to it in case of any difficulty or dispute as to the meaning of the terms employed in this description.

SCHEDULE TWO.

Year and Chapter.	Title.	Extent of Repeal.
25 & 26 Vict. c. 66.....	An Act for the Safe Keeping of Petroleum.....	The whole Act.....
29 & 30 Vict. c. 69.....	The Carriage and Deposit of Dangerous Goods Act, 1866.....	Sections eight and nine.
31 & 32 Vict. c. 56.....	The Petroleum Act, 1868.....	The whole Act.....

HOUSE OF LORDS.

PETROLEUM BILL.—*June 16.*—A bill for the safe keeping of petroleum and other substances of a like nature was presented by the Earl of Morley, and read a first time.

June 20.—The Earl of Morley, in moving the second reading of the Petroleum bill, explained that it consolidated the former acts on the subject, and the existing regulations as to the landing, storage, etc.

UNITED STATES.

IN THE HOUSE OF REPRESENTATIVES.

JANUARY 29, 1869.

Read twice, referred to the Committee of Ways and Means, and ordered to be printed.

Not passed.

Mr. Moorhead, on leave, introduced the following bill :

A BILL to provide for the better security of life and property from the dangers of coal oil, crude petroleum, and their products, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That from and after the passage of this act there shall be levied and collected, in such manner and under such regulations as the Secretary of the Treasury shall prescribe, a tax of cents upon every barrel of distilled or refined coal oil or petroleum which shall be of the quality marked number one, as hereinafter provided ; and a tax of cents upon every barrel of such distilled or refined oil or petroleum which shall not be equal in quality or grade to number one ; and upon every barrel of benzine, benzole, naphtha, gasoline, and all other like products of coal oil or petroleum, and upon every barrel of crude coal oil or petroleum ; and there shall be levied and collected a tax of cents upon every gallon of such distilled or refined oil or petroleum which shall not be equal in quality or grade to number one ; and upon every gallon of benzine, benzole, naphtha, gasoline, or other like products of coal oil or petroleum in the hands of any person or persons other than the refiner or manufacturer thereof having the same for sale.

SEC. 2. *And be it further enacted,* That the Secretary of the Treasury shall appoint inspectors of distilled or refined coal oil or petroleum, whose duty it shall be to examine

and inspect and designate the quality of the products of all coal oil and petroleum that shall be distilled or refined in any State, Territory, or District in the United States. And if any person shall sell or remove from any distillery or refinery, or any establishment where coal oil or petroleum has been distilled or refined, any refined or distilled oil, without complying with the provisions of this act, such oil so sold or removed shall be seized and forfeited to the use of the United States; and any person or persons so offending shall be subject to a penalty of one thousand dollars, which shall be recovered before any court of competent jurisdiction, one-half of such penalties to go to the informer.

SEC. 3. *And be it further enacted*, That in order to ascertain the quality of distilled or refined coal oil or petroleum, it shall be submitted by the inspectors aforesaid to the process known as the "fire test," or such other mode of testing by which its quality shall be ascertained, as shall be approved by the Secretary of the Treasury; and all such oil when so tested, which will not ignite at a lower temperature than one hundred and ten degrees of the Fahrenheit thermometer, shall be designated as number one refined oil; and all such oil which will ignite at a lower temperature than one hundred and ten degrees, when tested as aforesaid, and all benzine, benzole, naphtha, gasoline, and other like products of coal oil or petroleum, and all crude coal oil, or petroleum, shall be designated by other and higher numbers in such manner as shall be approved by the Secretary of the Treasury.

SEC. 4. *And be it further enacted*, That before any such distilled or refined oil shall be taken from the premises where it has been distilled or refined it shall be put into good tight iron-hooped barrels or casks, or barrels or casks equal in strength and security to such iron-hooped barrels or casks, and the heads of all barrels or casks containing oil which will not ignite at a temperature lower than one hundred and ten degrees by the test aforesaid, shall be painted white; and there shall be marked thereon, in plain black letters, the name of the person or the company who distilled or refined the same, and the name of the works, and the place where it was distilled or refined, and also the name of the inspector who inspected the oil, and the number designating its quality. And all such distilled or refined oil which will ignite at a lower temperature than one hundred and ten degrees, when tested as aforesaid, and all benzine, benzole, naphtha, gasoline, and all other dangerous products of coal oil or petroleum, shall be put into barrels or casks of the quality aforesaid, and the heads thereof shall be painted red; and the name of the person or the company who distilled or refined the same, and the place where distilled or refined, also the name of the inspector who inspected the same, and the appropriate number designating the quality of the contents of such barrel or cask, shall be marked thereon in plain white letters; and all crude coal oil or petroleum which shall be barrelled or put into casks, shall be put into barrels or casks of the quality aforesaid, the heads of which shall be painted red, and the contents shall be marked thereon in plain white letters; and every person who shall falsely mark, or cause to be falsely marked, any such barrel or cask, or who shall put into any such barrel or cask, the head or heads of which are painted white, and marked with black letters, oil which will ignite at a lower temperature than one hundred and ten degrees when subjected to the test aforesaid, or who shall put any such oil or any benzine, benzole, naphtha, gasoline, or other like dangerous product of coal oil or petroleum, or crude coal oil or petroleum, into any barrel or cask that shall not be painted and marked in accordance with the provisions of

this act ; and if any person shall put or cause to be put any such oil of an inferior quality, or benzine, benzole, naphtha, gasoline, or other like products of coal oil or petroleum, or crude coal oil or petroleum, into any barrel or cask, the color or marks upon which indicate the contents thereof as being of a higher quality ; or if any person shall sell any such article or product without stating to the purchaser the true character of the same, such person or persons shall be subject to the penalties imposed by the second section of this act ; and if any explosion, fire, or other disaster shall occur by reason of any such violation of this act, such person or persons so offending shall be further punished by imprisonment for a period not to exceed ten years.

SEC. 5. *And be it further enacted*, That each inspector appointed under the provisions of this act shall be paid at the rate of _____ cents per barrel or cask for every barrel or cask he shall inspect ; and for every barrel or cask of oil which shall be inferior in quality to number one oil, and for every barrel of benzine, benzole, naphtha, gasoline, or other like products of coal oil, or petroleum, he shall be paid at the rate of _____ cents per barrel ; which shall be paid out of the revenue received under the provisions of this act in such manner as the Secretary of the Treasury shall prescribe.

SEC. 6. *And be it further enacted*, That the Secretary of the Treasury shall make such rules and regulations as may be necessary to secure the proper execution of this act, and may from time to time cause special examinations to be made into the administration thereof.

SEC. 7. *And be it further enacted*, That all moneys collected by virtue of this act shall be paid into the treasury of the United States ; and separate accounts thereof shall be kept ; and said moneys, or so much thereof as may be necessary, is hereby appropriated for the payment of the expenses of carrying into effect the provisions of this act ; and all officers of the treasury department shall render such services in connection with the enforcement of this act as the Secretary of the Treasury shall prescribe.

STATE OF MAINE.

In the Year of our Lord one thousand eight hundred and sixty-seven.

AN ACT to provide for the inspection of petroleum and coal oils and burning fluids, to regulate the manufacture and sale thereof.

Be it enacted by the Senate and House of Representatives in Legislature assembled, as follows :

SECTION 1. In every city and town in this State containing two thousand inhabitants or more, the mayor and aldermen or the selectmen shall, on or before the first day of May annually, appoint one or more persons to be inspectors of petroleum and coal oils and burning fluids, who shall be sworn to the faithful discharge of their duties. And it shall be their duty, when requested, to inspect such oils and burning fluids, by applying the fire test with some accurate instrument, to ascertain the igniting or explosive point thereof in degrees of Fahrenheit's thermometer ; and they shall cause every vessel or cask thereof by them so inspected to be plainly marked by the name of such inspector, the date of inspection, and the igniting or explosive point of the contents thereof.

SEC. 2. Whenever any cask or vessel of such oil or fluid will not bear the fire test of at least one hundred and twenty degrees Fahrenheit without ignition or explosion, the same shall be marked as aforesaid, and shall also be marked—unsafe for illuminating purposes. And if any inspector shall knowingly put false marks upon any such casks or vessels of such oils and fluids inspected by him, he shall be punished by a fine of not exceeding five hundred dollars, or by imprisonment for a term of six months in the county jail.

SEC. 3. Every person and corporation engaged in manufacturing, in any city or town in this State, any such petroleum or coal oil or burning fluid, shall cause every cask or other vessel thereof to be inspected and marked as aforesaid, by a sworn inspector. And if any person, or the agent or the officer of any corporation, shall manufacture and sell within this State any such oil or burning fluid, without first causing it to be inspected and marked as aforesaid, or that has been so inspected and marked as unsafe for illuminating purposes, he shall be punished by a fine of not exceeding five hundred dollars, or by imprisonment six months in the county jail.

SEC. 4. No person shall sell any such oil or burning fluid without first causing each cask or vessel of the same to be duly inspected and marked as aforesaid, unless it has already been so inspected and marked in this State or elsewhere; and if any person shall sell such oil or burning fluid that has not been so inspected and marked, or that has been so inspected and has been marked as unsafe for illuminating purposes, he shall be punished by a fine of not exceeding five hundred dollars, or by imprisonment in the county jail six months.

SEC. 5. All prosecutions under the second, third, and fourth sections of this act shall be by indictment.

SEC. 6. The selectmen of towns, and the mayor, aldermen, and police of cities, or any one of them, shall have the right at all times to examine all such oils and fluids kept in their respective cities and towns for sale, and to cause the same to be inspected and tested; and it shall be their duty to do so in all cases where they are informed or believe such oils or fluids are kept for sale in violation of law; and whenever they shall find any person keeping or selling any such oil or fluid in violation of the provisions of this act, it shall be their duty to cause such persons to be prosecuted therefor.

SEC. 7. This act shall take effect on and after the first day of June, eighteen hundred and sixty-seven.

Approved March 1, 1867.

VERMONT.

AN ACT regulating the sale of coal and petroleum oils.

It is hereby enacted by the General Assembly of the State of Vermont:

SEC. 1. The mayor and aldermen of any city, or the selectmen of any town, or the bailiffs or trustees of any incorporated village, where oils are sold, and where five or more inhabitants petition for the same, shall appoint annually one or more suitable per-

sons, not interested in the sale of said oils, as inspectors thereof, and fix their compensation, to be paid by the parties requiring the services of said inspectors.

SEC. 2. Every inspector, before entering upon the duties of his office, shall be duly sworn, and when called upon by any vendor, purchaser, or by any officer mentioned in the sixth section of this act, to test such oils, shall do so with all reasonable dispatch, by applying the fire test, as indicated and determined by G. Tagliabue's pyrometer, or some other instrument equally accurate. Any inspector, guilty of fraud, deceit or culpable negligence in inspecting such oils, shall be punished by fine not exceeding one hundred dollars, or imprisonment in the county jail not exceeding one month, or both, in the discretion of the court.

SEC. 3. No person shall mix for sale, naphtha and illuminating oils, or shall sell or offer for sale such mixture, or shall sell or offer for sale, except for purposes of re-manufacture, illuminating oils made from coal or petroleum, which will ignite at a temperature of less than one hundred and ten degrees, Fahrenheit, to be ascertained by the application of Tagliabue's, or some other approved instrument; and any person so doing, shall be held to be guilty of a misdemeanor, and shall, for each offence, upon conviction thereof, be liable to the same penalties provided in the second section of this act against inspectors; and shall also be liable therefor to any person suffering damage from the explosion or ignition of such oil, thus unlawfully sold; and such oil, thus unlawfully sold, or kept, or offered for sale, and the casks or packages containing the same, shall be forfeited and sold for the purposes of re-manufacture; one-half of the proceeds of such sale to go to the State, and the other half to the informer.

SEC. 4. For all the purposes of this act, all illuminating oils, made from coal or petroleum, having an igniting point of less than one hundred and ten degrees, Fahrenheit, to be determined in the manner provided in the third section of this act, shall be deemed to be mixed with naphtha.

SEC. 5. Any person who shall sell, or keep, or offer for sale, naphtha, under the name of oil, shall, for each offence, upon conviction thereof, be liable to the same penalties provided, and shall be subject to the same liabilities set forth in the second and third sections of this act.

SEC. 6. The selectmen of the towns, and the mayors, aldermen and police of the cities, and the bailiffs, or trustees and police of incorporated villages, in which inspectors are appointed, in conformity with the first section of this act, or any one of said officers within their respective towns, villages and cities, shall cause all persons violating any of the provisions of this act to be prosecuted therefor.

SEC. 7. This act shall take effect upon its passage.

Approved November 18, 1868.

MASSACHUSETTS.

General Laws.—[Chap. 152.]

AN ACT to provide for the storage, sale, and inspection of petroleum and its products.

Be it enacted, etc., as follows:

SECTION 1. The mayor and aldermen of every city, and the selectmen of every town of more than fifteen hundred inhabitants, and of every town of less than fifteen hun-

dred inhabitants, upon the written application of five or more citizens of such town therefor, shall appoint, annually, one or more suitable persons, not interested in the sale of crude petroleum, or in the sale or manufacture of petroleum, earth rock oil, or in any of their products, to be inspector or inspectors thereof in said city or town, and fix their compensation, to be paid by persons requiring their services under the provisions of this statute, and who before entering upon the duties of their office shall be duly sworn. Any inspector guilty of fraud, deceit, or culpable negligence in the performance of his duties, shall be punished by fine not exceeding one hundred dollars, or imprisonment in the county jail or house of correction not exceeding one month, or by both, in the discretion of the court.

SEC. 2. No person shall mix for sale naphtha and illuminating oils, or shall sell or offer for sale such mixture, or shall sell or offer for sale, except for purposes of re-manufacture, illuminating oils made from coal or petroleum, which will evaporate a gas under one hundred degrees Fahrenheit or ignite at a temperature of less than one hundred and ten degrees Fahrenheit, to be ascertained by the application of Tagliabue's, or some other approved instrument; and any person so doing shall for each offence be punished by fine or imprisonment, as provided in the first section hereof; and shall also be liable therefor, to any person suffering damage from the explosion or ignition of such oil thus unlawfully sold or kept, or offered for sale; and such oil thus unlawfully sold or kept, or offered for sale, and the casks or packages containing the same shall be forfeited and sold, one-half of the proceeds of such sale to go to the Commonwealth and the other half to the informer.

SEC. 3. For all the purposes of this act, all illuminating oils made from coal or petroleum having an igniting point of less than one hundred and ten degrees Fahrenheit, to be determined in the manner provided in the second section of this act, shall be deemed to be mixed with naphtha and shall be branded unsafe for illuminating purposes.

SEC. 4. Any person who shall sell, or keep, or offer for sale naphtha under any assumed name, shall for each offence, upon conviction thereof, be liable to the same penalties provided, and shall be subject to the same liabilities set forth in the first two sections of this act.

SEC. 5. Crude petroleum, or any of its products, may be stored, kept, manufactured or refined in detached and properly ventilated buildings specially adapted to the purpose, and surrounded by an embankment constructed so as to effectually prevent the overflow of said petroleum or any of its products beyond the premises on which the same may be kept, manufactured, or refined; said buildings to be occupied in no part as a dwelling; and if less than fifty feet from any other building, must be separated therefrom by a stone or brick wall at least ten feet high and twelve inches thick; and any person keeping such articles in any other kind of building, except as is hereinafter provided in the sixth section hereof, shall be punished by fine or imprisonment, in the manner provided in the first two sections hereof.

SEC. 6. No person shall manufacture, refine, mix, store, or keep for sale any oil or fluid composed wholly or in part of any of the products of petroleum, in any city or town, except as provided in the fifth section of this act, without a license first having been obtained from the mayor and aldermen of said city or the selectmen of said town, and in said license there shall be expressed the manner, and the portion of any locality

or building in which said articles may be mixed, stored or kept; and whoever mixes, stores, or keeps said articles in any one locality, except as aforesaid, without having first obtained a license as herein required, or having obtained such license, mixes, stores, or keeps said articles in a different manner, or in any other portion of said locality or building than is expressed in said license, shall forfeit and pay a sum not exceeding five hundred dollars, to be recovered in any appropriate form of action, to be instituted in the name of the mayor of said city, or of the selectmen of said town; and the license granted in accordance with the provisions of this act shall continue to be in force from the time of granting the same until the first day of April next succeeding, unless sooner revoked; and said license shall be revokable at all times by the authorities granting the same.

SEC. 7. Upon complaint made to the justice of any municipal or police court, or to a justice of the peace, by the mayor or by an alderman of any city, or by a selectman of any town, or by an inspector appointed under the provisions of this act, or any engineer of a fire department, fireward, chief of police, or city marshal, that he has probable cause to suspect, and does suspect, that any of the articles enumerated in this act are offered for sale, or are deposited and kept within the limits of said city or town, contrary to the provisions of this act, said justice or court may issue a warrant directed to any such inspector, engineer or fireward, or to any sheriff, deputy-sheriff, constable or police officer, ordering him to enter any shop, warehouse, manufactory, or any other building specified in the warrant, to make diligent search for such article or articles suspected to be so offered for sale, deposited or kept, and to make return of his doings to said justice or court forthwith.

SEC. 8. None of the articles enumerated in this act shall be allowed to remain in any street, lane, alley, or travelled way, or upon any wharf, or in any yard, or on the grounds of any railroad corporation in any city for a longer time than twenty-four hours, and in any town for a longer time than forty-eight hours, without a special permit from the mayor and aldermen of said city, or the selectmen of said town, or from some person by them duly authorized; and any and all persons so keeping such articles for a longer time, shall be punished by a fine of not more than fifty dollars for each and every such offence.

SEC. 9. The city council of any city, and the inhabitants of any town, may adopt such ordinances, by-laws and regulations not inconsistent with the provisions of this act, as they may deem reasonable in relation to the manufacture, mixing, storing, keeping or selling within the corporate limits of said city or town, any of the articles herein enumerated, and may affix penalties for breaches thereof not exceeding fifty dollars for each offence, reasonable notice of which shall be given to all concerned.

SEC. 10. Chapter two hundred and eighty-five of the acts of the year eighteen hundred and sixty-six, and chapter two hundred and eighty-six of the acts of the year eighteen hundred and sixty-seven, so far as they are inconsistent with the provisions of this act, are hereby repealed.

SEC. 11. No person shall sell, or keep for sale, or in storage, any crude or refined petroleum, naphtha, kerosene, earth rock, machinery or illuminating oil, in any city or town, without having the same inspected and approved by an authorized inspector. And any person violating the provisions of this section shall be fined and imprisoned in the manner provided in the first section of this act in relation to inspectors.

SEC. 12. The first and tenth sections of this act shall take effect upon its passage, and the remaining sections thereof sixty days after its passage.

Approved April 10, 1869.

[Chap. 345.]

AN ACT to amend "An act to provide for the storage, sale, and inspection of petroleum and its products."

Be it enacted, etc., as follows:

SEC. 1. The eleventh section of chapter one hundred and fifty-two of the acts of the year eighteen hundred and sixty-nine, is hereby repealed.

SEC. 2. No person shall sell, or keep for sale at retail, for illuminating purposes, any kerosene, refined petroleum, or any product of petroleum, without having the same inspected and approved by an authorized inspector. Any person violating the provisions of this section shall be fined and imprisoned in the manner provided in the first section of chapter one hundred and fifty-two of the acts of the present year.

Approved June 2, 1869.

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS.

In General Assembly, January Session, A. D. 1871.

AN ACT to regulate the inspection, sale, and keeping of inflammable and explosive fluids.

It is enacted by the General Assembly as follows:

SECTION 1. No person shall keep for sale, or offer for sale, in any place or building within this State, petroleum oil or any product thereof, or shall knowingly keep for sale, or offer for sale, any mixture of naphtha, or inflammable fluids for illuminating purposes, for use in lamps or other portable receptacles, that will flash or inflame at a less temperature, or fire test, than one hundred and ten degrees Fahrenheit, or that has not been inspected, tested, and the cask, barrel, or package containing the same, marked with the degrees Fahrenheit at which the contents thereof will flash or inflame, in manner provided by section two of this act, nor shall any person empty any petroleum oil or any product thereof, or any mixture of naphtha, or inflammable fluids which shall be at any time brought into this State, out of the original packages in which it is brought into this State, until the same has been inspected by the inspector of kerosene.

SEC. 2. It shall be the duty of the inspector of kerosene to inspect and test all petroleum oil, kerosene, and coal oil, and their compounds, and any product or mixture thereof, which may be manufactured, offered for sale, or stored in this State, with Tagliabue's Coal Oil Tester, and to legibly mark upon every cask, barrel or package, so tested by him, the degrees Fahrenheit at which the contents thereof are inflammable, or will flash or explode, by cutting, branding, or painting the same thereon, together with his official brand or stamp, and the initials of his name; and for every cask, barrel, or other package so inspected and branded, the owner thereof shall pay the inspector as compensation therefor, twenty-five cents, in case he shall inspect only one cask, barrel or package, at any one time; twenty cents in case he shall inspect more than one, and

not exceeding five casks, barrels, or packages at any one time; and fifteen cents, in case he shall inspect more than five casks, barrels, or packages at any one time.

SEC. 3. Petroleum oil, or any of its products, or the compounds thereof, that are not inflammable, or which do not flash at a less temperature or fire test than one hundred and ten degrees Fahrenheit, may be kept upon sale, or stored in this State, in the following manner only, and subject to the terms and conditions hereinafter named, namely: in quantities of not to exceed one barrel, holding not more than fifty gallons, in any store or warehouse. In quantities exceeding one barrel, and not exceeding ten barrels, in cellars at least four feet below the surface of the street, properly ventilated, and under buildings, no part of which is occupied as a dwelling house. In quantities exceeding ten barrels, and not exceeding one hundred barrels, in warehouses constructed of brick, stone, or iron, especially adapted to that purpose. In quantities exceeding one hundred barrels, in warehouses constructed of brick, stone or iron, situated more than fifty feet distant from the nearest adjacent building or wharf, or if within fifty feet of the nearest building or wharf, there shall be a wall of brick or stone between said warehouse and any such building or wharf, at least ten feet high and sixteen inches thick; and all such warehouses shall be so constructed or arranged, that no overflow or escape of the articles therein stored, beyond the limits thereof, can possibly take place.

SEC. 4. It shall be the duty of the inspector of kerosene and his deputies, to examine from time to time all premises, within this State, wherein petroleum oil or any product thereof, or any mixture of naphtha or inflammable fluid for illuminating purposes is stored or kept, and the owners and occupants of all such premises shall allow the said inspector and his deputies, at all times, to enter upon and inspect such premises.

SEC. 5. In no case shall any petroleum oil, or any product thereof, or any mixture of naphtha or inflammable fluid for illuminating purposes, be allowed to remain in the open air, or on any sidewalk, beyond the front line of any building, or in any street, for a longer time than is actually necessary for the storage, shipment, or delivery of the same, nor in any case between the time of sunset of any one day and sunrise of the following day.

SEC. 6. Any person who shall violate either of the foregoing provisions of this act, or shall knowingly or wilfully alter, efface, or destroy any official mark or brand, after the same has been placed by the inspector of kerosene, or his deputies, upon any barrel, cask or package, in accordance with the provisions of this act, shall, upon conviction, pay a fine of not less than fifty dollars and not more than five hundred dollars, or shall be imprisoned not exceeding six months.

SEC. 7. Any person who shall, for the purpose of sale, put or cause to be put into any cask, barrel, or other package, which has been heretofore branded or marked by the inspector of kerosene, or his deputy, in manner prescribed by this act, any petroleum oil, kerosene, or coal oil, or naphtha, or inflammable fluid, or any mixture, product or component thereof, or of either thereof, the same not having been first tested by said inspector, or his deputy, in accordance with the provisions of this act, shall, upon conviction, pay a fine of not less than fifty dollars nor more than five hundred dollars, or shall be imprisoned not exceeding six months.

SEC. 8. The Governor, by and with the advice and consent of the senate, shall appoint annually at the May session of the General Assembly, an inspector of kerosene, and as

many deputies as he shall deem necessary, who shall perform the duties prescribed by this act.

SEC. 9. Nothing in this act contained shall be construed to prevent the town councils of the several towns, and the city councils of the several cities, from exercising the powers vested in them by the provisions of chapter 659 of the Statutes.

SEC. 10. Nothing herein contained shall be construed to require an inspection of any petroleum oil or inflammable fluid which has been inspected under the provisions of any city or town ordinances.

SEC. 11. The Governor is authorized, upon the passage of this act, to appoint an inspector of kerosene, who shall hold his office until his successor is appointed, as provided by this act.

SEC. 12. This act shall take effect on the first of June next.

I certify the foregoing to be a true copy of an act passed March 24, 1871.

JOHN R. BARTLETT,
Secretary of State.

CITY OF PROVIDENCE.

AN ORDINANCE in amendment of, and in addition to, an ordinance entitled "An ordinance in amendment of an ordinance entitled 'An ordinance in relation to inflammable and explosive articles,'" approved March 26, 1867.

[Approved May 25, 1868.]

It is ordained by the City Council of the City of Providence as follows :

SECTION 1. No person shall keep for sale or offer for sale, in any place or building within the corporate limits of the city of Providence, petroleum oil, or any product thereof, or shall knowingly keep for sale or offer for sale any mixture of naphtha for illuminating purposes, that is inflammable at a less temperature or fire-test than one hundred and ten degrees Fahrenheit, or that has not been inspected, tested, and the cask, barrel, or package containing the same marked with the degree Fahrenheit at which the contents thereof are inflammable, or will explode, in manner provided by section third of this ordinance; neither shall any person empty any petroleum oil, or any product thereof, or any mixture of naphtha which shall be at any time imported into the city of Providence, out of the original packages in which it is imported, until the same has been inspected and tested by the Inspector of Kerosene.

SEC. 2. Petroleum oil, or any of its products, or the compounds thereof, that are not inflammable at a less temperature or fire test than one hundred and ten degrees Fahrenheit, may be kept upon sale, or stored in the city of Providence, in quantities of not to exceed one barrel, holding not more than fifty gallons, in any store or warehouse.

SEC. 3. It shall be the duty of the Inspector of Kerosene to inspect and test all petroleum oil, kerosene, and coal oil, and their compounds, and any product or mixture thereof which may be manufactured, offered for sale, or stored in the city of Providence,

with Tagliabue's Coal Oil Tester, or some other improved instrument for that purpose, and to legibly mark upon every cask, barrel, or package so tested by him, the degree Fahrenheit at which the contents thereof are inflammable or will explode, by cutting, branding, or painting the same thereon, together with his official brand or stamp and the initials of his name; and for every cask, barrel, or other package so inspected and branded, the owner thereof shall pay the Inspector, as compensation therefor, twenty-five cents, in case he shall inspect only one cask, barrel, or package at any one time; twenty cents in case he shall inspect more than one, and not exceeding five casks, barrels, or packages at any one time, and fifteen cents, in case he shall inspect more than five casks, barrels, or packages at any one time.

SEC. 4. Any person who shall violate either of the above-named provisions of this ordinance, or shall knowingly or wilfully alter, efface, or destroy any official mark or brand, after the same has been placed by the Inspector of Kerosene upon any barrel, cask, or package, in accordance with the provisions of section third of this ordinance, shall be punished by a fine of not less than fifty dollars, and not more than two hundred dollars, or by imprisonment not exceeding six months.

SEC. 5. All ordinances and parts of ordinances inconsistent herewith are hereby repealed.

PENNSYLVANIA.

AN ACT for the better security of the city of Philadelphia from dangers incident to the refining or improper and negligent storage of petroleum, benzine, benzole, or naphtha.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met,* and it is hereby enacted by the authority of the same, That after ninety days from the passage of this act, no petroleum, benzine, benzole, or naphtha shall be refined or manufactured within the city of Philadelphia, on the eastern side of the river Schuylkill, between Allegheny avenue and Mifflin street, excepting throughout the area southward of Washington street, and between the river Schuylkill and Thirtieth street, or on the western side of the river Schuylkill, south of Girard avenue and east of Forty-third street; nor shall the same be kept or stored in any building or other premises within such limits, in any greater quantity at any one time than twenty-five barrels of refined petroleum and one barrel of crude petroleum, and one barrel of benzine, benzole, or naphtha respectively; the said barrels to be kept or stored in buildings with cellars of sufficient depth, or in premises properly excavated or embanked, to prevent any overflow of the fluids therefrom, under forfeiture, as hereinafter directed, of the entire quantity of each, and all of the said articles of merchandise that shall be so refined, kept, or stored contrary to the restrictions of this act; *Provided*, That it shall be lawful to keep or store the said quantities of refined petroleum, crude petroleum, benzine, benzole, or naphtha, within the designated limits, without license therefor, first had from the mayor of the city of Philadelphia, upon due certificate to be given by the fire marshal of the said city, that the cellar, excavation, or premises, in which storage, as aforesaid, shall be authorized,

will afford reasonable security from special danger in case of accidents or fire, for which license the sum of ten dollars shall be paid to the city treasury; and such license to be renewed for each calendar year, upon annual payment as aforesaid; *Provided*, That those persons engaged in the business of refining petroleum within the above limits, who have erected iron tanks and other suitable and safe protection against the escape and dispersion of the same, which fact shall be certified by the fire marshal to the mayor, shall not be subject to the provisions of this act until the expiration of one year from the passage hereof. *And, provided further*, That nothing herein contained shall prevent the refining, storing, or depositing of crude or refined petroleum or coal oil on the west side of the Schuylkill, east of Thirtieth street, between Bridge street and Arch street, and between Chestnut street and South street, on premises with sufficient excavations or embankments to prevent the overflow or escape of the oil so refined, stored, or deposited in case of fire or accident. *And provided further*, That no refining of petroleum, benzine, benzole, or naphtha shall be carried on within five hundred feet of the east or west side of the river Schuylkill, within the said city, north of the line of Girard avenue.

SEC. 2. That it shall be lawful to refine, manufacture, store, and keep petroleum, benzine, benzole, or naphtha in such quantities as may be desired in those portions of the city of Philadelphia east and west of the river Schuylkill, not included within the limits designated in the first section of this act for prohibition therefrom; *Provided*, that the same be at least one hundred feet distant from any dwelling, without the written consent of the owner thereof. *And provided further*, that a license be first had from the mayor of the city of Philadelphia, for which ten dollars shall be paid into the city treasury, and likewise for the annual renewal thereof, after certificate, to be given by the fire marshal of the said city, upon actual survey and inspection of the building or premises in which said commodities shall be refined, kept, or stored, or are designed so to be, that the said buildings or premises have suitable tanks, cellars, excavations, or embankments, to prevent the overflow or escape of petroleum and like commodities in the event of accident or fire; which certificate of survey and inspection shall be returned to the mayor, whereupon, if the same be approved by him, he shall issue his license in accordance with the provisions of this act.

SEC. 3. Whenever any inhabitant of the said city shall make oath or affirmation, before the mayor of the city of Philadelphia, which shall afford probable cause to believe that any petroleum, benzine, benzole, or naphtha is improperly stored, kept, or refined, contrary to the provisions of this act, it shall be lawful for the said mayor to issue his warrant or warrants to any police officer of the said city, or other fit persons, commanding him or them to search for such petroleum, benzine, benzole, or naphtha, wherever the same may be, in violation of any of the provisions of this act, and, if found, to seize and take possession of the same, and cause the same to be removed to such safe place as the mayor shall thereupon designate in writing.

SEC. 4. All actions or suits for the recovery of any petroleum, benzine, benzole, or naphtha which may have been seized and detained by virtue of the provisions of this act, or for the value thereof, or for damages sustained by the seizure or detention thereof, shall be brought against the Philadelphia Association for the Relief of Disabled Firemen, and shall be commenced within one calendar month after such seizure shall

have been actually made; and in case no action or suit shall have been commenced within such period, such petroleum, benzine, benzole, or naphtha shall be deemed absolutely forfeited to said Philadelphia Association for the Relief of Disabled Firemen, and may be immediately delivered up to the proper officers thereof for its use.

ARTHUR G. OLMSTED,
Speaker of the House of Representatives.

WILLIAM J. TURRELL,
Speaker of the Senate.

Approved the second day of March, Anno Domini one thousand eight hundred and sixty-five.

A. G. CURTIN.

Subsequent acts merely extended the operations of the act to other parts of the State.

MARYLAND.

AN ACT to regulate the manufacture and sale of oils for illuminating purposes.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That all oils or fluids manufactured from petroleum or its products, used for illuminating purposes in this State, which shall be manufactured or kept for sale therein, shall be required to stand a fire test of one hundred and ten degrees Fahrenheit before they shall burn, to be ascertained by the instrument adopted by the Petroleum Board of Trade.

SEC. 2. *Be it enacted,* That any one manufacturing or selling illuminating oils or fluids manufactured from petroleum or its products, by the barrel, shall be required to have stamped upon the head of the barrel the name of the manufacturer and seller thereof, and his place of business, together with the words, "warranted to stand a fire test of one hundred and ten degrees Fahrenheit before it shall burn," and any manufacturer or seller disposing of five gallons or more shall furnish a certificate of test, as above; provided, that the fire test herein provided shall not apply to the manufacture, sale or use of the illuminating fluid known as gasoline.

SEC. 3. *Be it enacted,* That whoever manufactures or keeps for sale, for illuminating purposes, oils or fluids made from petroleum or its products, and which do not sustain the fire test provided for in section one of this act, or who shall sell the same to others for such purposes, shall forfeit said oil, which shall be declared confiscated, one half to the informer and the remainder to the State.

SEC. 4. *And be it enacted,* That any purchaser of oils or fluids made of petroleum or its products, for illuminating purposes, bearing stamp or certificate, as provided in section two of this act, and which do not stand the fire test provided in section one of this act, may recover from the seller in an action for debt an amount equal to the purchase money of said oil.

SEC. 5. *Be it enacted,* That any accident by reason of explosion occurring when the oil or fluid aforesaid used does not reach the test provided for in this act shall subject the manufacturer or other party proved to have adulterated said oil, if residents of this State, or seller thereof, if manufactured out of the State, to be prosecuted for a misde-

meanor, and upon conviction thereof in a court of competent jurisdiction, to fine or imprisonment, or both, at the discretion of the court; and any one adulterating oils so as to reduce them below the standard provided in this act, and selling the same for illuminating purposes, or who shall knowingly use for illuminating purposes oils under test, as hereinbefore provided, shall be subject to the same penalties provided in sections three, four, and five thereof for manufacturers and sellers.

SEC. 6. *Be it enacted*, That any oils confiscated in Baltimore City, as provided for in this bill, shall be tested by or in presence of the Fire Inspector of Baltimore, appointed by the insurance companies of said city, and he shall decide the test of such oil.

Approved April 4, 1871.

OHIO.

AN ACT to provide for the inspection of mineral oils for illuminating purposes, and to repeal acts therein named.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That upon the application of five or more citizens of any county in this State, wherein any mineral oils are made, refined or produced for the purpose of burning in any kind of lamp as an illuminator, or where any of them are sold for that purpose, the judge of the court of common pleas shall appoint a sufficient number of suitable and qualified persons, who are not interested in the making or vending of any of said oils, who shall, at their own expense, provide themselves with the necessary instruments and apparatus for testing the quality of said oils for illuminating purposes, that they shall be requested by any manufacturer, refiner, dealer, vender or producer to test and examine, and if, upon such testing or examination, the oils so tested shall meet the requirements hereinafter specified, the inspector shall fix his brand and device "approved," with the date, upon the package, cask or barrel containing the same; and it shall be lawful for any manufacturer, refiner, dealer or producer to sell the same as an illuminator. But if the oil so tested shall not meet the requirements hereinafter specified, he shall mark upon such package, cask or barrel, "rejected for illuminating purposes," under his name, and it shall be unlawful for the owner thereof to sell it for illuminating purposes, under the pains and penalties hereinafter provided.

SEC. 2. It shall be the duty of the inspector, when called upon for that purpose, promptly to inspect all oils hereinbefore mentioned, and to reject as dangerous all of said mineral oils, known by whatsoever name, which, at the temperature of one hundred and ten degrees Fahrenheit's thermometer, will emit an explosive gas; provided, that the instrument used in testing of said mineral oils shall be that made with a suspended wick, by John Tagliabue, of New York; and provided, also, that the quantity of oil used in the test shall not be less than half a pint, and the temperature slowly raised to the degree at which such explosive gas is emitted, or to that hereinbefore provided as a test.

SEC. 3. That if any person, whether manufacturer, refiner, dealer or producer, shall sell or attempt to sell to any person in this State any of said mineral oils for illuminating purposes, whether manufactured, refined or produced in this State or not, before having

the same inspected, as provided by this act, or if any manufacturer, refiner, vender, producer or inspector of said mineral oils for illuminating purposes, shall falsely brand the package, cask or barrel containing the same, as provided in the first section of this act, or shall use barrels, casks, or packages having the inspector's brand, without the oil therein having been inspected, he or they so offending, upon conviction thereof, shall be fined in any sum not exceeding five hundred dollars nor less than one hundred dollars, or be imprisoned in the county jail not exceeding six months, or both, at the discretion of the court; and any person violating any provision of this act, or who shall neglect to do what is required herein, shall be liable to any party injured for any damage sustained thereby, and if any loss of life result as a consequence of not doing what he is herein required, or by the neglect of the manufacturer, refiner, dealer, producer or inspector to do what is hereby enjoined, the person so delinquent shall be deemed guilty of manslaughter and punished according to the statute in such cases made and provided.

SEC. 4. All prosecutions for fines and penalties under the provisions of this act shall be by indictment in the court of common pleas of the proper county, and when collected the one-half of the same shall be paid to the informer, and the remaining one-half be paid into the county treasury for the use of the county.

SEC. 5. Every person appointed inspector shall, before he enters upon the duties of his office, take an oath or affirmation to support the constitution of this State and of the United States, and perform the duties of his office with fidelity. He shall also execute a bond to the State of Ohio, in such sum and with such surety as shall be approved by the court of common pleas of the county where appointed, conditioned for the faithful performance of the duties imposed on him by this act, which bond shall be for the use of all persons aggrieved by the acts or neglects of such inspector.

SEC. 6. The term of office of an inspector shall be for three years; and every inspector shall, upon requisition of any manufacturer, vender, or producer of the oils herein mentioned, proceed without unnecessary delay to the inspection thereof; and the said inspector shall be entitled to demand and receive from the owner or party calling upon him, where there are three or more refineries of said mineral oils in a county, the sum of six cents for every package, cask, or barrel of said refined mineral oils or crude petroleum, and when there are a less number of refineries in any county, the sum of ten cents for any package, cask, or barrel inspected and branded by him.

SEC. 7. No inspectors shall, while in office, buy, sell, barter, or otherwise trade, directly or indirectly, in any of the aforesaid mineral oils which they are appointed to inspect; and for the violation of this section they shall be liable to a fine of not more than five hundred and not less than two hundred dollars, to be collected in accordance with the provisions of section five of this act.

SEC. 8. That an act passed May first, 1862, entitled "An act to provide for the inspection of petroleum oils for illuminating purposes," and an act amendatory thereto, passed March nine, 1866, be and the same are hereby repealed.

SEC. 9. This act shall be in force from and after its passage.

ED. A. PARROTT,

Speaker of the House of Representatives.

ANDREW G. MCBURNEY,

President of the Senate.

April 16, 1867.

ILLINOIS.

AN ACT to provide for the inspection and sale of mineral oils used for illuminating purposes.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That the mayor and aldermen of any city, or the board of trustees of any town, wherein any coal, petroleum, or other mineral oils are made, refined, produced or sold for illuminating purposes, and where five or more inhabitants petition for the same, shall appoint, annually, one or more suitable persons, not interested in the manufacture or sale of said oils, as inspectors thereof, and shall fix their compensation, to be paid by the parties requiring the services of said inspectors.

SEC. 2. Every inspector, before entering upon the duties of his office, shall be duly sworn. He shall also execute a bond to the State of Illinois, in such sum and with such surety as shall be approved by the probate court of the county where appointed, conditioned for the faithful performance of the duties imposed on him by this act, which bond shall be for the use of all parties or persons aggrieved by the acts or neglect of such inspector. And when called upon by any manufacturer, refiner, producer, dealer, or purchaser of such oils, or by any officer mentioned in section five of this act, to test such oils, the said inspector shall do so, with all reasonable dispatch, by applying the fire-test, as indicated and determined by J. Tagliabue's pyrometer, or some other instrument equally as accurate, with which he shall have provided himself at his own expense; and if the oils so tested will not ignite or explode at a temperature less than one hundred and ten degrees Fahrenheit, the inspector shall mark, plainly and indelibly, on each cask, barrel, or package, "approved, fire test being——," but if said oils will ignite at a temperature less than one hundred and ten degrees Fahrenheit, as aforesaid, then the inspector shall mark on each cask, barrel or package, "condemned for illuminating purposes—fire test being——." Said inspector, while in office, shall not buy, sell, bargain or trade, directly or indirectly, in any of the said oils. He may appoint deputies, for whom he shall be responsible, and who shall perform the duties of inspector. He shall keep an intelligible record of each inspection made, within twenty-four hours thereafter, in a book prepared for the purpose, which shall be open to all parties interested. Any inspector found guilty of fraud, deceit, or culpable negligence in the performance of any of his duties, as prescribed in this section of this act, shall be punished by fine not exceeding one hundred dollars, or imprisonment in the county jail not exceeding one month, or both, in the discretion of the court.

SEC. 3. Any manufacturer, refiner, producer, or dealer, who shall neglect to give notice to said inspector of any such oil in his or her possession, not already inspected by any duly authorized inspector of the State of Illinois, within two days after the same shall have been made, refined, produced, or purchased, shall be liable to the same penalties provided in the second section of this act against inspectors.

SEC. 4. Any person, whether manufacturer, refiner, producer, or dealer, who shall sell or attempt to sell to any person in this State, any of said oils for illuminating purposes, whether manufactured, refined, or produced in this State or not, which shall be below the "approved" standard—that is, having an igniting point less than one hundred and ten degrees Fahrenheit—as indicated and determined in the manner described in the

second section of this act, or before having the same inspected as herein provided; or if any manufacturer, refiner, producer, dealer, or inspector of said oils shall falsely brand the package, cask, or barrel containing the same, as provided in the second section of this act, or shall use barrels, packages, or casks having the inspector's brand thereon, and the oil therein not having been inspected, he or they so offending, upon conviction thereof, shall be liable to the same penalties provided in the second section of this act against inspectors; the casks, barrels, or packages containing the same shall be forfeited and sold—one-half of the proceeds of such sale to go to the school fund of the county, and the other half to the informer—and, further, shall be liable to any person or persons for all damages sustained by him or them by the explosion or ignition of such oil thus unlawfully kept and sold.

SEC. 5. The mayor, aldermen, and police of any city, and the board of trustees of any town in which an inspector is appointed in conformity with the first section of this act, or any one of said officers, within his respective city or town, shall cause all persons violating any of the provisions of this act to be prosecuted therefor.

SEC. 6. All prosecutions for fines and penalties, under the provisions of this act, shall be by action of debt or indictment in any court of competent jurisdiction, and the fines so collected shall be paid one-half to the informer and one-half into the school fund of the county wherein the same shall be collected.

SEC. 7. This act shall be deemed a public act, and shall take effect and be in force from and after its passage.

Approved April 19, 1869.

CHICAGO BOARD OF HEALTH.

January 4, 1870.

Be it ordained by the Board of Health of the City of Chicago :

1st. That on and after January 15, 1870, it shall be unlawful for any person or persons to sell any oil, kerosene, petroleum, burning-fluid, or other fluid intended for the purposes of illumination, without attaching to each package, bottle, can, or other vessel containing the same, the following

CAUTION :

Do not attempt to light a fire with this oil. Do not fill the lamp while it is burning, or at night. A lamp in daily use should be cleaned occasionally and all the oil removed from it, by daylight and not at night. Fill the lamp with oil daily. Do not place the oil near the fire, or where there is more than usual heat. Keep it in a cool place. Neglect of the above directions may result in the loss of your life and property.

2d. On and after January 15, 1870, it shall be unlawful for any person or persons engaged in the selling of kerosene oil, petroleum, or other fluid intended for illuminating purposes, to continue in the same without having first registered with this Board the name or title of the firm and street and number of the location of the same.

The printed caution required by the foregoing regulations will be furnished upon application at this office.

The penalty for the neglect or violation of any of the foregoing regulations is fixed by law at from five to five hundred dollars.

INDIANA.

AN ACT to provide for the inspection of petroleum oils for illuminating purposes, marking and branding the same; prescribing penalty for selling without inspection, or for falsely branding the cask, package, or barrel containing the same, or for violating any of the provisions of this act; for the appointment of inspectors and deputies, prescribing duties and terms of office, and imposing penalties for inspectors or deputies trading in any article they are appointed to inspect.

[Approved March 9, 1863.]

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana, That,* upon the application of five or more citizens of any county in this State, wherein any coal oil, petroleum oil, or a mixture of coal and petroleum oils is made, refined, or manufactured for the purpose of burning in any kind of lamp as an illuminator, or where the same, or any one of them, is sold for that purpose, the judge of the Court of Common Pleas shall appoint a suitable and qualified person, who is not interested in the making or vending of any or either of said oils or burning fluids, who shall, at his own expense, provide himself with the necessary instruments and apparatus for testing the quality of said illuminating coal or petroleum oils or burning fluids, whose duty it shall be to examine and test the quality of all coal or petroleum oils or burning fluids that he shall be requested by any manufacturer, refiner, dealer, or vendor to examine; and if, upon such testing or examination, the oils or fluids so tested shall meet the requirements hereinafter specified, he shall fix his brand and device, "approved," with the date, upon the package, cask, or barrel containing the same, and it shall be lawful for any manufacturer or dealer to sell the same as an illuminator; but if the oil so tested shall not meet said requirements, he shall mark upon such package, cask, or barrel, "rejected for illuminating purposes," under his name, and it shall be unlawful for the owner thereof to sell it for illuminating purposes under the pains and penalties hereinafter provided.

SEC. 2. It shall be the duty of every manufacturer of refined coal oil, petroleum oil, or mixed coal and petroleum oils, to mark or brand upon the package, cask, or barrel containing the same, according to the fact, "illuminating coal, or petroleum, or mixed oil," in addition to their ordinary trade mark.

SEC. 3. It shall be the duty of the inspector, when called upon for the purpose, promptly to inspect all oils or burning fluids hereinbefore mentioned, and to reject as dangerous all petroleum oils which, at the temperature of one hundred degrees, Fahrenheit's thermometer, will emit an explosive gas, or take fire on plunging therein a well-lighted match, provided that the quantity of oil used in the test shall not be less than half a pint, and it shall be the duty of said inspector to designate by his brand the temperature at which such oils will ignite.

SEC. 4. That if any person, whether manufacturer or dealer, shall sell, or attempt to sell, to any person in this State, any of said illuminating oils, whether manufactured in this State or not, before having the same inspected as provided by this act, he shall,

upon conviction thereof, be fined in any sum not exceeding five hundred dollars; and if any manufacturer or vendor of either of said illuminating oils, shall falsely brand the package, cask, or barrel containing the same, as provided in the first section of this act, or shall use barrels, casks, or packages having the inspector's brand, without having the oil inspected, he, or they, so offending, upon conviction thereof, shall be fined in any sum not exceeding five hundred dollars, nor less than one hundred dollars, or be imprisoned in the county jail not exceeding six months, or both, at the discretion of the court; and any person violating any provision of this act, or who shall neglect to do what is required herein, whether manufacturer or dealer, shall be liable to any party injured for any damage sustained thereby; and if any loss of life result as a consequence of not doing what is herein required, or by the neglect or refusal to do what is hereby enjoined, by the manufacturer, refiner, or dealer, the person so delinquent shall be deemed guilty of manslaughter, and punished according to statute in such cases made and provided.

SEC. 5. All prosecutions for fines and penalties under the provisions of this act shall be by presentment in the Court of Common Pleas of the proper county, and when collected shall be paid into the county treasury for the use of the county.

SEC. 6. The several inspectors provided for in this act are hereby empowered, if necessary to the convenient despatch of their respective duties, to appoint a suitable number of deputies, for whom they shall respectively be accountable, which deputies are hereby empowered to perform the duties of inspection, and shall be liable to the same penalties as the inspector.

SEC. 7. Every person appointed inspector or deputy inspector shall, before he enters upon the duties of his office, take an oath or affirmation to support the Constitution of this State and of the United States, and perform the duties of his office with fidelity. He shall also execute a bond to the State of Indiana in such sum, and with such surety as shall be approved by the Court of Common Pleas of the county where appointed, conditioned for the faithful performance of the duties imposed on him by this act, which bond shall be for the use of all persons aggrieved by the acts or neglects of such inspector.

SEC. 8. The term of office of an inspector shall be for one year, and every inspector shall, upon the requisition of any manufacturer or vendor of the oils herein mentioned, proceed, without unnecessary delay, to the inspection thereof, and said inspector shall be entitled to demand and receive from the owner or party calling upon him the sum of five cents for any package, cask, or barrel inspected and branded by him.

SEC. 9. Every deputy inspector shall, within twenty-four hours after the inspection of the oils hereinbefore mentioned, return a true and exact account thereof to his principal, who shall make an entry of all oils inspected, in an intelligible manner, in a book prepared for that purpose, which shall be open to inspection by any person interested.

SEC. 10. No inspector or deputy inspector shall, while in office, buy, sell, barter, or otherwise trade, directly or indirectly, in any article which they are appointed to inspect; and for the violation of this section they shall be liable to a penalty not exceeding two hundred dollars, to be collected in accordance with the provisions of section five of this act.

GEORGIA.

AN ACT to protect the people of this State in the sale of kerosene oil.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the State of Georgia*, That from and immediately after the passage of this act the standard for kerosene oil for sale in this State shall be one hundred and ten (110) degrees fire test.

SEC. 2. That any person or persons convicted of selling, offering for sale, or giving away kerosene oil of a fire test less than one hundred and ten (110) degrees fire test shall be fined in the sum of not less than one hundred dollars, nor more than five hundred dollars, one-half the fine to go to the informer, one-fourth to the inspector, and the remainder to the county treasury.

SEC. 3. That the duty of inspecting kerosene oil shall be performed by inspectors of fertilizers in each county, and if no inspectors of fertilizers in the county be qualified, then the ordinary, assisted by such persons as he may choose.

SEC. 4. That the following test be published for the information of all concerned: "Heat a small quantity of water in a basin until its temperature is above one hundred and ten (110) degrees Fahrenheit, then add cold water slowly; at the moment the scale of the thermometer placed in the basin marks one hundred and ten (110) degrees, pour a spoonful of the oil to be tested into the water; thus the oil is brought to one hundred and ten degrees; then pass a wisp of burning paper over the oil; if the escaping vapor catches fire the oil is dangerous, but if not then it is safe."

SEC. 5. That cases arising under this act shall be tried before the Superior Court of this State.

SEC. 6. Repeals conflicting laws.

Approved October 24, 1870.

MICHIGAN.

AN ACT to provide for the inspection of illuminating oils, manufactured from petroleum or coal oils.

SECTION 1. *The People of the State of Michigan enact*, That upon the application of five or more citizens of any county within this State, wherein any illuminating oils are manufactured and refined from petroleum or coal oils, for the purpose of burning the same in any kind of lamp, as an illuminator, or where the same, or a mixture of petroleum and coal oil is sold for that purpose, the judge of the circuit court within whose judicial district the said county is embraced, shall appoint a suitable person who is not interested in manufacturing, dealing, or vending any or either of said oils, whose duty it shall be to examine and test the quality of all petroleum or coal oils that he shall be requested to examine and test by any manufacturer, refiner, vendor, or dealer; and if upon such testing or examination the oils or fluid so tested shall meet the requirements hereinafter specified, he shall fix his brand or device, namely: "Approved," with the date, over his official signature, upon the package, barrel, or cask containing the same, and it shall be lawful for any manufacturer, vendor, or dealer, to sell the same as an illuminator; but if the oil so tested shall not meet said requirements, he shall mark, in plain

letters, on said package, cask, or barrel, over his official signature, the words "rejected for illuminating purposes," and it shall be unlawful for the owner thereof to sell said oil for illuminating purposes.

SEC. 2. It shall be the duty of the inspector to provide himself, at his own expense, with the necessary instruments and apparatus for testing the quality of said illuminating oils, and, when called upon for that purpose, to promptly inspect all oils hereinbefore mentioned, and to reject as dangerous all petroleum or coal oils, which at the temperature of one hundred and ten degrees, Fahrenheit's thermometer, will emit an explosive gas, or take fire on applying thereto or plunging therein a well-lighted match: *Provided*, The quantity of oil used in this test shall not be less than half a pint. And it shall be the duty of said inspector to designate by his brand the temperature at which said oil will ignite.

SEC. 3. All illuminating oils manufactured or refined in this State, shall be inspected before removed from the manufactory or refinery. And if any person or persons, whether manufacturer, vendor, or dealer, shall sell, or attempt to sell, to any person in this State, any illuminating oils, whether manufactured in this State or not, before having the same inspected as provided in this act, he shall be subject to a penalty in any sum not exceeding five hundred dollars; and if any manufacturer, vendor, or dealer of either or any of said illuminating oils, shall falsely brand the package, cask, or barrel containing the same, as provided in the first section of this act, or shall use packages, casks, or barrels having the inspector's brand thereon, without having the oil inspected, he shall be subject to a penalty in any sum not exceeding five hundred nor less than one hundred dollars, or be imprisoned in the county jail not exceeding six months, or both, at the discretion of the court.

SEC. 4. The several inspectors provided for [in] this act are hereby empowered, if necessary to the convenient and prompt despatch of their respective duties, to appoint a suitable number of deputies, for whose official acts they shall be accountable, which deputies are hereby empowered to perform the duties of inspection, and shall be liable to the same penalties as the inspector.

SEC. 5. Every person appointed inspector or deputy inspector shall, before he enters upon the discharge of the duties of his office, take an oath or affirmation to support the constitution of the United States and the State of Michigan, and to discharge the duties of inspector with fidelity. He shall also execute a bond to the State of Michigan, in such sum and with such surety as shall be approved by the judge of the circuit court where appointed, conditioned for the faithful performance of the duties imposed on him by this act, which bond shall be for the use of all persons aggrieved by the acts or neglect of said inspector; and the same shall be filed with the clerk of the county where the inspectors reside.

SEC. 6. The term of office of an inspector shall be for two years; and every inspector or deputy inspector shall, upon the requisition of any manufacturer, dealer, or vendor of the oils herein mentioned, proceed without unnecessary delay to the inspection thereof; and said inspector shall be entitled to demand and receive from the owner or the party calling upon him, the sum of ten cents for each and every package, cask, or barrel inspected and branded by him; and it shall be the duty of every inspector to keep a true and accurate record of all oils so inspected and branded by him, and by his deputies,

which record shall state the date of inspection, the number of gallons or barrels, and the name of the person for whom inspected, and the record shall be open to the inspection of any and all persons interested. And it shall be the duty of every deputy inspector, within four days after the inspection of any oils hereinbefore mentioned by him, to make a true return thereof to his principal.

SEC. 7. No inspector or deputy inspector shall, while in office, traffic directly or indirectly in any article which he is appointed to inspect. For the violation of this section, he shall be liable to a penalty not exceeding ten hundred dollars.

Approved April 3, 1869.

AN ACT to amend sections one, two, and six of an act entitled "An act to provide for the inspection of illuminating oils manufactured from petroleum or coal oils," approved April third, eighteen hundred and sixty-nine, being act number one hundred and twenty-eight, of the session laws of eighteen hundred and sixty-nine, and to add thereto a new section, to stand as section eight of said act.

SECTION 1. *The People of the State of Michigan enact*, That sections one, two, and six of an act entitled "An act to provide for the inspection of illuminating oils manufactured from petroleum or coal oils," approved April third, eighteen hundred and sixty-nine, being act one hundred and twenty-eight, of the session laws of eighteen hundred and sixty-nine, be and the same are hereby amended so as to read as follows :

SECTION 1. *The People of the State of Michigan enact*, In any county of the State wherein any illuminating oils are manufactured for the purpose of burning in any kind of lamp as an illuminator, or where the same is sold for that purpose, the Governor, upon the application of five or more persons, residents of said county, shall appoint a suitable person, who is not interested in manufacturing, dealing, or vending any or either of said oils, whose duty it shall be to examine and test the quality of all such oils that he shall be requested to examine and test by any manufacturer, vendor, or dealer, and if, upon such testing or examination, the oils shall meet the requirements hereinafter specified, he shall fix his brand or device, viz. : "Approved," with the date, over his official signature, upon the package, barrel, or cask containing the same, and it shall be lawful for any manufacturer, vendor, or dealer to sell the same as an illuminator; but if the oil so tested shall not meet said requirements, he shall mark in plain letters on said package, cask, or barrel, over his official signature, the words "Rejected for illuminating purposes," and it shall be unlawful for the owner thereof to sell such oil for illuminating purposes.

SEC. 2. It shall be the duty of the inspector to provide himself, at his own expense, with the necessary instruments and apparatus for testing the quality of said illuminating oil, and, when called upon for that purpose, to promptly inspect all oils hereinbefore mentioned, and to report as dangerous all oils which, at the temperature of one hundred and ten degrees of Fahrenheit's thermometer, will emit an explosive gas, or take fire on applying thereto or plunging therein a well-lighted match: *Provided*, The quantity of oil used in this test shall not be less than half a pint; and it shall be the duty of said inspector to designate by his brand the temperature at which said oil will ignite.

SEC. 6. The term of office of an inspector shall be for two years; and every inspector

or deputy inspector shall, upon the requisition of any manufacturer, dealer, or vendor of the oils herein mentioned, proceed, without unnecessary delay, to the inspection thereof, and said inspector shall be entitled to demand and receive from the owner or the party calling upon him, the sum of four cents for each and every package, barrel, or cask inspected and branded by him; and it shall be the duty of every inspector to keep a true and accurate record of all oils so inspected and branded by him and by his deputies, which record shall state the date of inspection, the number of gallons or barrels, and the name of the person for whom inspected, and the record shall be open to the inspection of any and all persons interested. And it shall be the duty of every deputy inspector, within four days after the inspection of any oils hereinbefore mentioned, by him, to make a true return thereof to his principal.

SEC 8. It shall not be necessary for any person to have inspected, under the provisions of this act, oils brought into this State from any other of the United States, which have been inspected under the laws of any other such State, if the package, cask, or barrel in which the same is brought into this State shall bear a brand or device of the State inspector or deputy State inspector of such other State, showing that the contents thereof have been approved and stand a fire test of one hundred and ten degrees of Fahrenheit's thermometer. And if any person within this State shall brand, mark, or place upon any package, cask, or barrel, any device with intent to show that the contents thereof have been inspected in any other State, or if any vendor, dealer, or manufacturer of any or either of said illuminating oils shall use packages, casks, or barrels having the brand of the inspector of another State thereon, without having the oil inspected, or without the same having been inspected as in this section specified, the person so offending shall be subject to a penalty in any sum not exceeding five hundred dollars, nor less than one hundred dollars, or be imprisoned in the county jail not exceeding six months, or both, at the discretion of the court.

SEC. 2. This act shall take immediate effect.

Approved March 22, 1871.

MISSOURI.

INSPECTION OF PETROLEUM.

AN ACT to regulate the inspection of petroleum oils or fluids, or any products thereof, sold or manufactured for illuminating purposes.

SECTION

1. Governor to appoint inspector of coal and petroleum oils for certain cities.
2. Mode of inspecting and branding such oils.
3. Additional brands to be affixed by inspector.
4. Penalty for selling uninspected oils or meddling with brands of inspector.
5. Prosecutions for such offences to be by indictment; fines collected disposed of, how.
6. Deputy inspectors may be appointed.

SECTION

7. Oaths to be taken by inspectors and bonds to be given to county court.
8. Term of office and compensation of inspectors.
9. Records to be kept by them, and annual report to be made to Governor.
10. Inspectors and deputies prohibited from participating in manufacture or sale of such oils, or applying any to their own use.
11. Former acts in relation to such inspection repealed.

Be it enacted by the General Assembly of the State of Missouri, as follows:

SECTION 1. The Governor shall appoint for each of the cities of St. Louis, Hannibal, St. Joseph, and Kansas City, and such other cities or towns as shall by the city or town authorities petition to him therefor, an inspector of coal oil, carbon oil, petro-

leum oil, kerosene, gasoline, or any product of petroleum used for illuminating or burning fluids, by whatever name known, which may be manufactured or offered for sale in this State. Said inspector shall be a competent and qualified person, and shall, at his own expense, provide himself with the necessary instruments for the testing and gauging or weighing the quality and quantity of any such illuminating oils or fluids.

SEC. 2. It shall be the duty of the inspector, when called upon for that purpose by the owner, manufacturer, or dealer of any of said illuminating oils or fluids, promptly to inspect or test and gauge the same within the city or town for which he is appointed. The inspector shall in all cases take the oil or fluid for test from the package which is intended to be branded, and in no case shall he mark or brand any package before having first inspected or tested the contents thereof; and the quantity used for testing the fire test of such illuminating oil or fluid shall not be less than half a pint, and shall be ascertained by applying thereto a well-lighted match, and all such illuminating oils or fluids that will ignite or burn at a less temperature than one hundred and ten degrees Fahrenheit, he shall brand "rejected," and all that will stand the fire test of one hundred and ten degrees Fahrenheit, he shall brand "approved standard fluid."

SEC. 3. The inspector shall, in addition to the brand in section two provided, affix his brand or device upon each package by him inspected, designating first: his name and place and date of inspection, thus: "— inspector of —, 18—;" second, the fire test, thus, "ignited at — temperature;" third, if the fluid inspected has no fire test, then the specific gravity of same, thus: "specific gravity —;" fourth, the capacity of the package in gallons and the out, thus: "gallons —, outs —;" *provided*, that if hereafter weight shall be established for the ascertaining of the quantity in place of gauging by gallons, then the inspector shall mark on the package inspected by him, the gross weight in place of gallons as provided for in this section. The inspector shall, in addition to the aforesaid, affix his brand on all packages by him found to contain fluids that have no fire test as aforesaid, with the words "highly inflammable."

SEC. 4. If any person, manufacturer or dealer, shall sell to any person whatsoever in this State, before having the same inspected, any of the said illuminating oils or fluids before first having the same inspected as provided in this act, he shall, on conviction thereof, be fined in any sum not exceeding three hundred dollars; and if any manufacturer or dealer of said illuminating oils or fluids shall, with intent to deceive or defraud, alter or erase the inspector's brand to indicate a different fire test, gravity, or quantity than is found by the inspector, or shall use with such intent packages having any inspector's brand thereon, without having the contents actually inspected, shall, on conviction, be fined in any sum not exceeding fifty dollars for each such offence.

SEC. 5. All prosecutions for fines and penalties under the provisions of this act shall be by indictment in any court of competent jurisdiction, and when collected, shall be paid into the treasury of the county where the offence is committed, one-fourth of which shall be paid to the informer, and three-fourths to be paid to the common school fund.

SEC. 6. The inspectors are hereby empowered, if necessary to the convenient despatch of their respective duties, to appoint competent deputies, for whom they shall and are hereby made respectively responsible and accountable; which deputies are hereby empowered to perform the duties of inspector, and shall be liable and are hereby made liable to the same penalties as the inspector.

SEC. 7. Every person appointed inspector, shall, before he enters upon the duties of his office, take an oath or affirmation to support the Constitution of this State and of the United States, and to perform the duties of his office with fidelity ; he shall also execute a good and sufficient bond to the county court of the county in which he may reside, in such sum and with such securities as shall be approved by said court, conditioned for the faithful performance of the duties herein imposed on him, which bond shall be for the use of all persons aggrieved by the acts or neglects of such inspector or his deputy.

SEC. 8. The term of office for inspector shall be for one year, and for his compensation he shall be entitled to demand and receive from the owner of the illuminating oils or fluids inspected or tested, and gauged or weighed, and marked and branded as in this act provided, twelve cenis for each barrel, and six cents for each smaller package.

SEC. 9. The respective inspectors appointed under this act shall keep a correct record of all illuminating oils or fluids inspected, which shall be open to inspection by all persons interested, and report annually to the Governor the number of barrels and smaller packages inspected.

SEC. 10. No inspector or deputy inspector shall, while in office, be interested directly or indirectly in the manufacture or vending of any of the said illuminating oils or fluids to be inspected under this act, nor shall he for the purpose of inspecting, testing or gauging, take away nor appropriate any part of said illuminating oils or fluids to his own use, or for the use of any other person, under penalty of five hundred dollars, to be recovered by an indictment in the manner provided for in section five of this act.

SEC. 11. Chapter one hundred and five of the General Statutes, and all other acts and parts of acts in relation to inspection of coal and petroleum oils, entitled "An act for the inspection of coal oil or petroleum oils, approved March the eighteenth, eighteen hundred and sixty-seven, and amended and approved March twenty-fourth, eighteen hundred and sixty-eight," are hereby repealed.

Approved March 24, 1870.

LOUISIANA.

Board of Health of New Orleans.

OFFICE BOARD OF HEALTH, STATE OF LOUISIANA, }
NEW ORLEANS, July 2, 1870. }

Whereas, The frequency of accidents from the use of oils and fluids produced from coal and petroleum, has rendered it necessary, in the belief of the Board of Health, that the public should be advised as to which of said oils and fluids it deems *dangerous* for common use, and which it considers *safe*, and thus, as far as possible, protect the citizen; the said Board publishes : That it considers no such oil or fluid safe whose flashing point is below 110° Fahrenheit ; that is, that no such oil or fluid which gives off an inflammable gas or vapor at a lower temperature than 110° Fahrenheit is safe from explosion, or from its readiness to take fire. There are many such oils and fluids which are inflammable at all temperatures, and this Board consider such oils and fluids dangerous, principally and specially from their excessive inflammability, while explosions from such highly inflammable oils and fluids occur frequently. Such oils or fluids as these, if

used at all, should be used with great care and never be left in the hands of children ; nor should they be used except in metallic lamps. These oils and fluids are generally, unless artificially colored, without color, and look like water. These are the lighter products of coal and petroleum.

Between these highly inflammable oils and fluids and the safe oils, is another class of oils or fluids, generally of a yellowish color, dangerous both from their inflammability and liability to explosion. These classes include a very large proportion of all the oils and fluids sold in our markets, and the public is cautioned to avoid the use of them entirely. All lamps should be filled every day, by daylight. Most explosions occur when the lamp is but partly filled.

While this Board has adopted the "flashing point 110° Fahrenheit," as the lowest standard practically safe from most ordinary accidents, it does not wish to be understood to imply that even with oils or fluids at or above the standard great care and caution should not be used. It is, however, the standard adopted in several of the States. The Board specially cautions the public against the use of oil or fluid, produced from coal or petroleum, which is marked "below Board of Health standard flashing point, 110°."

Of the eleven accidents officially reported upon to the Board of Health since May 26, three were caused by oils liable both to take fire and explode ; and eight were caused by fluids of the class dangerous by reason of excessive inflammability.

C. B. WHITE, M.D.,
President.

OFFICE OF BOARD OF HEALTH,
159 CANAL STREET, NEW ORLEANS, }
July 3, 1870. }

At a meeting of the Board of Health of the State of Louisiana, held on Friday, the 1st day of July, 1870, it was

Resolved, That section twenty-two of the sanitary ordinance, adopted by this Board on the 18th day of May, 1870, be amended and re-enacted, so as to read as follows :

SEC. 22. It shall hereafter be unlawful for any person or persons, firm or corporation, to sell, give, or deliver (except as a common carrier), any kerosene oil or other illuminating oil or oils, or any illuminating fluid or fluids, derived wholly or in part from coal or petroleum, except in the manner hereinafter specified ; that is, if the quantity so sold, given, or delivered, shall exceed five gallons in amount, the person or persons, firm or corporation, making such sale, gift, or delivery, shall before actual delivery thereof, place, or cause to be placed, such oil or oils, fluid or fluids, in wooden casks or metallic vessels, of such quality and structure as to be thoroughly tight and secure ; if, however, the quantity so sold, given, or delivered, shall not exceed five gallons in amount, then the person or persons, firm or corporation, making such sale, gift, or delivery, shall, before actual delivery thereof, place, or cause to be placed, such oil or oils, fluid or fluids, in tin or other metallic vessels, which shall be thoroughly tight and secure ; and any person or persons, firm or corporation, making any such sale, gift, or delivery (except as a common carrier), shall, before actual delivery thereof, whatever the amount of such sale, gift, or delivery may be, attach, or cause to be attached, securely to the cask or vessel containing such oil or oils, fluid or fluids so sold, given, or to be delivered, a card, label, or tag, upon which shall be printed, in plain type, not less than three-eighths of

an inch in height, the correct name and brand of such oil or oils, fluid or fluids, in such cask or vessel contained; also, the words and figures following: "Inflammable at — degrees Fahrenheit" (naming the degrees), or "Inflammable at any temperature" (as the case may be); also the words and figures following: "Explosive at — degrees" (naming the degrees), or "Non-explosive" (as the case may be); also, the words following: "Board of Health Standard Flashing Point, 110 degrees." There shall also be upon said card, label, or tag, the name of the person or persons, firm or corporation, making such sale, gift, or delivery, with the street and number where such person or persons, firm or corporation, does business. Any person or persons, firm or corporation, making any sale, gift, or delivery of any such oil or oils, fluid or fluids, otherwise than as hereinbefore specified, shall be liable to a penalty not exceeding fifty dollars; and any person or persons, firm or corporation, neglecting or failing to attach or cause to be attached securely to the cask or vessel containing any such oil or oils, fluid or fluids, the card, label, or tag as aforesaid, or to place thereon the words and figures, as hereinbefore specified, shall be liable to a penalty not exceeding fifty dollars; and any person or persons, firm or corporation, who shall attach or suffer to be attached to any such cask or vessel any card, label, or tag, which shall not be, in all respects, a true representation of the contents of such cask or vessel, or which shall not be true in every other respect, shall be liable to a penalty of fifty dollars. The acts and doings of employes of any person or persons, firm or corporation, in all the matters and things referred to in this section, shall be considered as the acts and doings of such person or persons, firm or corporation. This section shall not be construed as applicable to actual sales, gifts, or deliveries of oil or oils, fluid or fluids, to be shipped beyond the territory included in the district under the sanitary control of the Board of Health.

S. C. RUSSELL, M.D.,
Secretary.

C. B. WHITE, M.D.,
President.

STATE LAW ON COAL OILS RECOMMENDED FOR ADOPTION BY THE BOARD OF HEALTH
OF NEW ORLEANS.

AN ACT to provide for the inspection and designation of coal oils and illuminating oils or fluids, derived wholly or in part from coal or petroleum; to regulate the sale or disposition of the same; to prohibit the sale or disposition of illuminating oils or fluids dangerous to life and property, and to prescribe penalties for violations of this act.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the State of Louisiana, in General Assembly convened,* That in every city or town in the State of Louisiana, containing, according to the census of the United States, for the year one thousand eight hundred and seventy, not less than two thousand inhabitants (except in the city of New Orleans), the Mayor, by and with the consent of the Council, shall, within thirty days after the promulgation of this act, appoint one or more suitable persons to be inspectors of coal oils, and of all illuminating oils or fluids, derived wholly or in part from coal or petroleum, which said person or persons shall, before entering upon the discharge of the duties of such office, be duly sworn to truly and faithfully perform all the duties required of such inspector or inspectors by this act.

SEC. 2. *Be it further enacted, etc.,* That in and for the city and parish of Orleans, the Board of Health of the State of Louisiana shall appoint or employ one or more suitable persons to be inspectors in and for said city and parish, of coal oils and all illuminating oils or fluids, derived wholly or in part from coal or petroleum, which said person or persons shall subscribe to a like oath as provided in section one of this act, and shall perform the duties prescribed in this act for inspectors, and likewise such other duties as may at any time be required by the said Board of Health for the more perfect accomplishment of the purposes of this act.

SEC. 3. *Be it further enacted, etc.,* That it is hereby made the duty of the inspectors appointed under this act, to inspect, upon notice received in writing from the proper party, all coal oils, or illuminating oils or fluids, derived wholly or in part from coal or petroleum, and to ascertain by Tagliabue's pyrometer, or by some other instrument, approved by the Board of Health, the flashing point of such oils or fluids, in degrees of Fahrenheit's thermometer, and to mark upon each cask or vessel containing such oil or fluid, in plain and distinct letters, characters or figures, by stencil plate, or otherwise, as the Board of Health may direct, the name of the inspector making such inspection, the place and date of such inspection, and the flashing point, in degrees as aforesaid, of the oil or fluid in such cask or vessel contained.

SEC. 4. *Be it further enacted, etc.,* That upon such inspection being completed, the inspector making the inspection shall be entitled to have and to receive from the party requiring such inspection to be made, fees at the rate of one-half cent per gallon for each and every gallon of oil or fluid so inspected at such inspection, and no more. The fees or compensation of the inspector or inspectors in and for the city and parish of Orleans shall be established by the Board of Health, and shall be paid as provided for in the first clause of this section.

SEC. 5. *Be it further enacted, etc.,* That it is hereby declared to be unlawful for any person, firm, company or corporation to sell or expose for sale, or dispose of (except as a common carrier) any coal oil, or any illuminating oil or fluid, derived wholly or in part from coal or petroleum, until the same shall have been inspected and marked as provided in section three of this act; and any person, firm, company or corporation violating any of the provisions of this section shall be liable to a penalty not to exceed the sum of two hundred dollars for each offence; and shall be debarred from any suit at law to recover the price of such oil or fluid from the vendee thereof.

SEC. 6. *Be it further enacted, etc.,* That it shall be hereafter unlawful for any person, firm, company or corporation to sell, give or deliver (except as a common carrier) or offer or expose for sale, for illuminating purposes, any coal oil, or illuminating oil or fluid, derived wholly or in part from coal or petroleum, whose flashing point shall be at less than the temperature of one hundred and ten degrees, to be ascertained as provided in section three of this act. Any person, firm, company or corporation violating, in any manner, any of the provisions of this section shall be liable to a penalty not exceeding the sum of two hundred dollars for each and every offence; and it is further provided, that in the event of any injury or damage to person or property, resulting from, or caused by such oil or fluid—unless such injury or damage be shown clearly to be the result of carelessness or negligence on the part of the person so injured or damaged in person or property—that such person shall have his action, in damages, against the

person, firm, company or corporation selling, giving or delivering (except as a common carrier) such oil or fluid, for the full amount of such injury or damage, and costs of action.

SEC. 7. *Be it further enacted, etc.*, That it is hereby declared to be unlawful for any person, firm, company or corporation to sell, or give, or deliver (except as a common carrier) any illuminating oil or fluid, derived wholly or in part from coal or petroleum, and known commonly in the market as naphtha, deodorized naphtha, gasoline or benzine; and for any and each violation of this section the person, firm, company or corporation so violating it, or any part of it, shall be liable to a penalty of five hundred dollars.

SEC. 8. *Be it further enacted, etc.*, That it is hereby made the duty of the district attorney of the parish (except the parish of Orleans) in which any offence against this act shall have been committed, to bring suit by ordinary action, in the name of the State of Louisiana, against the offender in any civil court of competent jurisdiction, for the recovery of the penalty incurred by such offence.

The Board of Health of the State of Louisiana shall prosecute, in its own name, by ordinary action, before any civil court of competent jurisdiction, in the parish of Orleans, for the recovery from the offender of the penalty incurred for any offence against any of the provisions of this act in the city and parish of Orleans; and all penalties collected under this act shall be paid into the treasury of the Board of Health, and become part of the funds of said board.

SEC. 9. *Be it further enacted, etc.*, That in order the more effectually to carry out the provisions of this act, and to prevent violations of sections five, six and seven of this act, the Board of Health of the State of Louisiana and the district attorneys of the respective parishes of this State, may, at the time of filing, or at any time in the progress of any suit, obtain a writ of injunction forbidding and restraining the defendant or defendants in such action from doing or suffering to be done any of the acts on account of which such action was brought. And such district attorney and the Board of Health shall be dispensed with furnishing the bond ordinarily required by law of plaintiff in obtaining the issuance of such writ.

SEC. 10. *Be it further enacted, etc.*, That all laws, or parts of laws, in conflict with this act are hereby repealed.

NEW YORK.

Chap. 773.

AN ACT to regulate the storage and keeping of crude petroleum, earth or rock oil, or any of its products, within the corporate limits of any city in the State of New York.

Passed June 15, 1865; three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. No person shall keep on sale or store in any place or building within the corporate limits of any city in the State of New York, any crude petroleum, earth or rock oil, or any of its products, except under the following provisions:

§ 2. Crude petroleum, earth or rock oil, or any of its products, may be stored in detached and properly-ventilated warehouses, the exterior walls of which shall be of stone, brick, or iron, specially adapted to that purpose by having raised sills at least two feet high, or the ground floor of which shall be at least two feet below the level of the street or adjoining land, in such manner as to effectually prevent the overflow of such substances beyond the premises where the same may be kept or stored, which said warehouses shall not be occupied in any part as a dwelling; and if less than fifty feet from any adjacent building, the same must be separated by a brick or stone wall, at least ten feet in height and sixteen inches thick.

§ 3. No refined petroleum, kerosene, or machinery oils shall be kept upon sale or stored within the corporate limits of any city in the State of New York, the fire test of which shall be less than one hundred degrees Fahrenheit; said test shall be determined by authorized inspectors, using G. Tagliabue's or other improved instruments; the barrels or packages containing the same to be legibly stamped or marked with said inspector's official stamp or mark. When stored above the cellar or basement of any store or building, and in barrels of not over forty-five gallons each, or metallic vessels or tanks, for convenience of retailing, the quantity of such refined oil so stored shall not exceed the contents of ten barrels. When packed in hermetically-sealed metallic packages the quantity so stored shall not exceed one hundred barrels. When stored in cellars or basements, surrounded by walls of brick or stone, and at least two feet below the level of the sidewalk, street, or land adjacent, the quantity so stored shall not exceed the contents of one hundred and fifty barrels, unless stored in warehouses specially adapted for that purpose, as provided under section two of this act; provided, also, that no quantity of said oils greater than five barrels shall be stored or kept in any building occupied in any part thereof as a dwelling. Benzine or naphtha may be kept or stored under the provisions of this section as follows: When stored above the cellar or basement, the quantity so stored shall not exceed the contents of ten barrels; when stored in a building any part of which may be occupied as a dwelling, the quantity so stored shall not exceed three barrels.

§ 4. In no case shall any of the articles recited in this act be allowed to remain on the sidewalk beyond the front line of any building or in the streets a longer time than is actually requisite for the storage, shipment, or delivery of the same, nor after sunset.

§ 5. It shall be the duty of inspectors of buildings, or other proper authorities, in addition to the duties now imposed upon them by law, to make an examination of all premises wherein either of the said articles mentioned in this act may be kept or stored, and to report any violation of said act at once to the proper authorities hereinafter named to enforce the same.

§ 6. Any person who shall offend against any of the provisions of this act shall, if the offence be against the before-noted prescribed fire test and marking for refined petroleum, kerosene, and machinery oil, pay a fine not less than fifty dollars nor more than five hundred dollars; and for the excess over quantity of said merchandise herein defined and permitted, a fine of two hundred and fifty dollars shall be paid for each day such excess was made; and for any of said merchandise improperly incumbering the highways, as noted in section four of this act, a fine of twenty-five dollars shall be paid for each day such incumbrance remain after notified to remove the same.

§ 7. The mayor and common council or other proper authorities in any city of the

State of New York not provided for by this act, shall, by ordinances or resolution, provide for the proper enforcement of the provisions of this act, and such fines as are imposed and collected after the payment of the necessary expenses of prosecution are to be devoted to the poor in the places where such fines shall be recorded* except in the cities of Brooklyn and New York, where such fines shall go to the widows and orphans' fund of the fire department of said cities.

§ 8. For the purpose of enforcing the several provisions of this act in the city of New York, there shall be appointed by the superintendent of buildings, appointed under chapter three hundred and fifty-six of the Laws of eighteen hundred and sixty-two, three inspectors in and for the city of New York, whose duty it shall be to report forthwith to the said superintendent of buildings all violations of the several provisions of this act in said city as well as all violations of chapter two hundred and ninety-one of the laws of eighteen hundred and forty-six, entitled "An act in relation to the keeping of gunpowder, saltpetre, and certain other substances in the city of New York," passed May thirteenth, eighteen hundred and forty-six, and said superintendent of buildings is hereby directed to prosecute all violations of this act committed in said city, as well of the act above named, passed May thirteenth, eighteen hundred and forty-six, in the same manner as now provided by chapter three hundred and fifty-six of the Laws of eighteen hundred and sixty-two; for the prosecution of building law violations.

The officers named under this section shall hold office respectively for the term of four years from the passage of this act, and shall be paid a salary of one thousand dollars per annum; and the amount of all penalties recovered in said city, after the payment of all costs and expenses incurred, shall be paid to the treasurer of the fire department fund in said city, for the benefit of said fund.

§ 9. For the purpose of enforcing the several provisions of this act in the city of Brooklyn, there shall be nominated by the mayor, and confirmed by the common council of said city, a competent and experienced person as special warden, whose duty it shall be to guard the said city against fires and explosions from petroleum, earth or rock oil, or the products thereof, or from benzole, benzine, naphtha, kerosene, camphene, or burning fluid of any kind, by requiring obedience to the ordinances of said city, and the laws of this State in relation to the storage, manufacture, or keeping for sale of such materials within said city, and said special warden shall have power at all times to enter all manufactories, warehouses, buildings, sheds, yards, and grounds within said city used for the manufacture, storage, or sale of any of the materials mentioned in this section, and examine such materials kept, manufactured, or sold therein, and the manner in which the same are kept or secured, and the owners, tenants, or occupants of all such manufactories, warehouses, buildings, sheds, yards, and grounds within said city shall permit and allow the said special warden at all times to enter the same.

The said common council shall have the power to regulate and prescribe the duties and compensation of such special warden, and to fix his term of office.

§ 10. This act shall not apply to any place or tract of land in this State where the oil springs may be discovered and worked.

§ 11. This act shall take effect on the first day of May next—*New York Statutes at Large, volume 6, General Statutes, 1863, '64, '65, '66.*

* So in the original.

Chap. 872.

AN ACT to amend an act entitled "An act to regulate the storage and keeping of crude petroleum, earth or rock oil, or any of its products within the corporate limits of any city in the State of New York," passed June fifteenth, eighteen hundred and sixty-five.

Passed May 4, 1866.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. The third section of the act entitled "An act to regulate the storage and keeping of crude petroleum, earth or rock oil, or any of its products, within the corporate limits of any city in the State of New York," passed June fifteenth, eighteen hundred and sixty-five, is hereby amended so as to read as follows:

"§ 3. No refined petroleum or kerosene oils shall be kept upon sale or stored within the corporate limits of any city in the State of New York, the fire test of which shall be less than one hundred and ten degrees Fahrenheit; said test shall be determined by authorized inspectors, using G. Tagliabue's or other improved instruments, the barrels or packages containing the same to be legibly stamped or marked with said inspector's official stamp or mark. When stored above the cellar or basement of any store or building in barrels of not over forty-five gallons each, or metallic vessels or tanks, for convenience of retailing, the quantity of such refined oil so stored shall not exceed the contents of ten barrels; when packed in hermetically sealed metallic packages, the quantity so stored shall not exceed one hundred barrels; when stored in cellars or basements, surrounded by walls of brick or stone, at least two feet below the level of the sidewalk, street, or land adjacent, the quantity so stored shall not exceed the contents of one hundred and fifty barrels, unless stored in warehouses specially adapted for that purpose, as provided under section two of this act; provided, also, that no quantity of said oils greater than five barrels shall be kept or stored in any building occupied in any part thereof as a dwelling. Benzine or naphtha may be kept or stored under the provisions of this section as follows: When stored above the cellar or basement, the quantity so stored shall not exceed the contents of ten barrels; when stored in the cellar or basement, the quantity so stored shall not exceed the contents of ten barrels; when stored in a building, any part of which may be occupied as a dwelling, the quantity so stored shall not exceed three barrels, provided, nevertheless, that nothing in this act contained shall prevent the storage of crude or refined petroleum in wrought-iron tanks, detached from any building and specially adapted to that purpose, or in other tanks so constructed that the top shall be at least two feet below the level of the street or adjoining land, and covered with at least one foot of earth, when such tanks are appurtenant to or connected with a refinery, with the approval of the inspector of buildings, fire marshal, or other proper authorities."

§ 2. The seventh section of said act is hereby amended so as to read as follows:

"§ 7. The mayor and common council, or other proper authorities in any city in the State of New York, not provided for by this act, shall by ordinance or resolution provide for the proper enforcement of the provisions of this act, and such fines as are imposed and collected, after the payment of the necessary expenses of prosecution, are to be devoted to the poor in the places where such fines shall be collected, except in the cities of

Brooklyn and New York, where such fines shall go to the widows and orphans' fund of the fire department of said cities, and except, also, in the city of Buffalo, where such fines shall be paid by the officers collecting them to the treasurer of the fireman's benevolent association of the city of Buffalo, for the use and benefit of such association."

§ 3. This act shall take effect immediately.—*New York Statutes at Large*, vol. 6, p. 877—1863-'64-'65-'66.

NEW YORK CITY.

AN ACT in relation to storage and the keeping of combustible material in the city of New York, the use and control of the fire alarm telegraph, the incumbrance of hydrants, and other purposes connected with the prevention and extinguishment of fires therein, and imposing certain powers and duties upon the board of fire commissioners of the said city. Passed April 26, 1871; three-fifths being present.

(Being Chapter 742 of the Laws of New York for 1871.)

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. The following regulations are hereby established for storage and the keeping and sale of combustible materials in the city of New York:

PETROLEUM, KEROSENE, ET CÆTERA.

§ 4. No person shall have, keep upon sale, or store in any place or building within the corporate limits of the city of New York, any crude petroleum, coal, or any similar oil, nor any of their products, either of which shall emit an inflammable vapor at a temperature below one hundred degrees Fahrenheit, except under the following provisions: These oils, or any of their products, may be stored in detached and properly ventilated warehouses, the outer walls of which shall be stone, brick, or iron, especially adapted for the purpose, by having raised sills at least two feet high, or the ground floor of which shall be at least two feet below the level of the street or adjoining yard, or so constructed as to actually prevent the overflow of such substances beyond the premises where the same may be kept or stored; which said warehouses shall not be occupied in any part as a dwelling; and if less than fifty feet from any adjacent dwelling, the same must be separated by a brick or stone wall at least ten feet in height and sixteen inches thick, constructed in such manner as said commissioners may prescribe, but the same may be stored in such other manner as said commissioners may designate under special permit issued therefor.

No refined petroleum, kerosene, coal, or similar oil, or any product thereof to be used for illuminating or heating purposes, which shall emit an inflammable vapor at a temperature below one hundred degrees Fahrenheit, shall be kept upon sale or stored within the corporate limits of the city of New York. All said articles shall be tested and their quality determined by sanitary surveyors authorized by said commissioners, using G. Tagliabue's instruments, or such other instruments as may be designated by said commissioners.

No refined petroleum, kerosene, gasoline, naphtha, or benzine, benzole, camphene or burning fluid, or products or compounds containing any of said substances, when temporarily placed above the cellar or basement of any building, and in barrels of not over forty-five gallons each, or in metallic vessels or tanks, shall exceed in the whole quan-

tity the contents of fifty of said barrels; provided, however, that the whole quantity of said refined oils that may be so kept or stored over night shall not exceed the contents of ten of said barrels, unless stored in the manner provided for storing crude petroleum; and when stored in cellars or basements surrounded by walls of brick or stone, and at least two feet below the level or grade of the sidewalk, street, or land adjacent, the whole quantity shall not exceed the contents of one hundred and fifty barrels, unless stored in warehouses specially adapted for that purpose, as required for the storage of crude petroleum under this section; provided, also, that no quantity of said oils greater than one barrel shall be stored or kept in any building occupied in any part thereof as a dwelling.

No refined petroleum, kerosene, gasoline, naphtha, benzine, benzole, camphene, burning fluid, or products or compounds containing any of said substances, shall be kept or stored, on or above the first story or floor of any building, exceeding in the whole quantity the contents of five barrels, of forty gallons each. In no case shall any of the articles named in this section be allowed to remain on the sidewalk beyond the front line of any building, or in or upon the streets, docks, piers, bulkheads, slips, highways, or public places, a longer time than is actually necessary for the removal or loading of the same; and said commissioners may establish and enforce general regulations, and issue such orders and special directions relative to the handling, lightering, carting, loading, unloading, and transportation of the several articles named under this section, as in their discretion shall be deemed necessary for the public protection; and said commissioners may issue special permits authorizing the keeping of any of the articles enumerated under this section in buildings, tanks, or structures fire-proof throughout, in such quantities, in such manner, and subject to such regulations as shall tend to secure the same against danger. No person shall sell at retail any kerosene or other product of petroleum, or any similar oil, to be used for heating or illuminating purposes, without first obtaining a license therefore from the said commissioners, to be issued with the consent of the mayor, under such rules and regulations as they may prescribe, which license shall be for the term of one year, and shall not be transferable; and for every such license, and for every renewal of the same, the said commissioners shall demand and receive the sum of ten dollars. Said license shall be posted in a conspicuous place in the store of the person or persons to whom the same is issued, and may be revoked for cause by said commissioners. Any person who shall sell any of the compounds above mentioned in this section without first obtaining a license therefor, shall forfeit and pay the sum of twenty-five dollars. In case any person is burned by the explosion of any compound, the sale of which is prohibited by any section of this act, or has not been subjected to sanitary survey or licensed as therein provided, and death ensues therefrom, the person found guilty of selling the same shall be deemed guilty of a felony, and upon conviction shall be punished by a fine of not less than one thousand dollars nor more than five thousand dollars, or by imprisonment in the State prison for a term not less than one year, nor more than five years; and in case of a bodily injury, the party injured may maintain an action for damages against the party violating the provisions of this act. And any dealer who shall present and deliver for sanitary survey a sample of oil different from and which does not represent the quality of oil actually kept by him or her for sale, and not taken from the actual stock being offered for sale, and of the same

quality therewith, shall forfeit and pay the additional sum of fifty dollars. If any fire insurance company organized under the laws of this State, or any insurance company of any other State, or any foreign insurance company authorized to do the business of insurance in this State, shall indorse upon any policy issued by them the right or privilege to keep, deal in, give away, sell, or use any article or compound of a combustible or explosive character, the sale of which is made unlawful by any act of the legislature of this State, or shall cause or permit such indorsement to be made by others upon their policies of insurance, they shall for each and every such offence forfeit and pay a fine of five hundred dollars.

PENALTIES.

§ 11. Any person, persons, or corporation, for the violation of, or non-compliance with, any of the several provisions of the several sections of this act, when the penalty is not therein specially provided, shall severally forfeit and pay a fine or penalty in the sum of fifty dollars for each and every such offence, or shall forfeit and pay the penalties respectively imposed under any of said sections, and shall also be severally liable for the removal, amendment, or abatement of any violation of, or non-compliance with, any requirement under said sections, and shall also be severally liable for the payment of the further penalty of the sum of fifty dollars for any violation of, or non-compliance with, any regulation, order, or special direction issued by said commissioners as authorized under this act. Said commissioners may, in their discretion, pay a portion of a fine or penalty, when collected, not to exceed one-half thereof, to an informer.

ENFORCEMENT OF LAW.

§ 12. The board of fire commissioners of the city of New York are hereby authorized, empowered, and specially charged with the duties of enforcing the several provisions of this act, and may incur any expense necessary and proper therefor; and as to the location of any matter, place, or thing under the several sections of this act, they shall severally be taken and construed to be located within, or apply to said city of New York; and said board of fire commissioners are hereby authorized and empowered to receive and collect all license fees herein mentioned, and to sue for, and shall have the exclusive right of recovery of, any and all penalties imposed under this act, and may sue for and recover and collect the same, with costs, in the manner provided for in actions under the Code of Procedure, and shall apply the same to the uses and purposes of the relief fund of the fire department of the city of New York; and said board of fire commissioners may, in their name, bring any suit or action authorized; and any action to recover any fee, fine, or penalty under this act may be brought in any of the district courts in said city; and the corporation attorney shall, under the direction of said commissioners, take charge of the prosecution of all suits or proceedings instituted for the recovery and collection of penalties, and the enforcement of the several provisions of this act; collect and receive all moneys upon judgments, suits, or proceedings so instituted; pay all costs and disbursements, and discontinue suits and proceedings, and execute satisfaction of judgments, upon payment of penalties, or costs, and in compliance with orders made in such suits and proceedings; shall keep a correct and accurate register of all suits and proceedings, and account for all moneys received and paid out thereon; and shall pay over to the treasurer of the relief fund herein created the

amount of all license fees, penalties, and moneys received and collected by him, after deducting the amount of all costs and disbursements actually made, provided that nothing herein contained shall be construed to increase or alter the compensation of the attorney of said board as now fixed, and the said commissioners are authorized to settle or compromise any such suit or judgment for less than the amount of the same, in case in their judgment they are satisfied that payment of the full amount cannot be collected.

§ 15. This act is hereby declared a public act, and all courts and tribunals, or any judge or justice, shall take cognizance thereof, and give force and effect to its several provisions; and all courts of civil jurisdiction in said city shall have jurisdiction over all suits or proceedings herein authorized to be brought; and upon the rendition of a verdict, report of a referee, or decision of a judge or justice, for the recovery of the amount of any penalty or penalties in any action brought therefor, shall give judgment for the amount of all penalties and costs, and for the removal, amendment, or abatement of any matter or thing as shall be proper and necessary to give force and effect to the several sections of this act.

All statutes heretofore in force in this State in any case provided for by this act, or inconsistent with its provisions, so far as the same relates to the city of New York, are hereby repealed; but such repeal shall not affect any right already existing, or accrued, or any liability already incurred by reason of any violation of any law heretofore existing, or any suit or proceeding already instituted under said laws, except as to the manner of conducting and enforcing the same; and all rights of action, given or secured by said laws, may be prosecuted in the manner provided by this act.

§ 16. This act shall take effect June first, eighteen hundred and seventy-one.

STATE OF NEW YORK, }
Office of the Secretary of State, } ss. :

I have compared the preceding with the original law on file in this office, and do hereby certify that the same is a correct transcript therefrom, and of the whole of said original law.

Given under my hand and seal of office, at the city of Albany, this twenty-eighth day of April, in the year one thousand eight hundred and seventy-one.

DIEDRICH WILLERS, JR.,
Deputy Secretary of State.

The importance of this subject is my only apology for having written so extended a report. It seemed very important that all the facts should be clearly set forth, both for the information of your Honorable Board and that of the public which is so deeply interested.

Respectfully submitted.

C. F. CILANDLER, Ph. D.,
*Chemist to the Department of Health
of the City of New York.*

March 18, 1871.

REV. JOHN WILLETT, Superintendent of Inebriates' Home for Kings County, writes as follows: "It affords me great pleasure, without any solicitation on your part, to state that we have been using your 'Astral Oil' in our institution, for the last twelve months, burning on an average twenty-five lights. The results have severely tested the safety of this Oil, and inspired the greatest confidence. I have for the last thirty years paid some attention to the question of Lamps, Burning Oils, and Fluids, having had occasion to use them on a large scale. In the absence of Gas, before your 'Astral Oil' came under my notice, I was using Kerosene of the authorized standard, but we had an accident which came near burning down our institution. It arose from an imperfect metal lamp, which took fire and melted down, the Kerosene blazing away at a fearful rate. Being satisfied that the margin between safety and danger was too close, I resolved to try your Astral; since then we have had three distinct accidents, occasioned by the breakage of lighted lamps, either of which would have been fatal had we been using Kerosene. The only result of the three breakages above referred to, was the extinguishing of the flame *just as though water had been thrown over it*. Our patients consist for the greater part of reading men, together with Artists, Draughtsmen, Writers, Accountants, &c., who frequently devote hours in the evening to the pursuit of their respective callings; and they remark on the *greatness of the illuminating power, the softness and purity of the flame*, and the absence of the painful and injurious effects of coal gas, not only on the eyes, but also the surrounding atmosphere. With a good lamp *the combustion of Astral is complete*. With coal gas and kerosene oil, a large proportion of volatile gases escape unconsumed, poisoning the atmosphere of the room, and inducing headache and exhaustion. By your process of purification you have succeeded in completely expelling those gases. For the sick room, especially, *I regard the 'Astral' Oil as invaluable*. Unless the lamp is defective, we can turn down the wick to any point, without experiencing any difficulty arising from the escape of unconsumed carbon, &c.

Yours respectfully,

JOHN WILLETT.

REV. ISAAC CROUSE, of Clyde, Ohio, writes: "I accidentally made a good test of your Astral Oil; a lamp fill with it was burning on the melodeon which my daughter was playing. The room was a little chilly, and in the act of throwing a shawl over her shoulders, she struck the lamp with such a heavy blow that it was thrown into the centre of the room, breaking the brass collar from the lamp and throwing the oil over the burning wick. Hearing the noise, I went into the room, picked up the wick, which I blew out, and wiped up the oil without further damage."

Mr. GEORGE W. BURNET, of Brooklyn, N. Y. says: "I formerly had the same opinion of 'Astral' as of other advertised non-explosive oils, until the early part of January, 1871, when my wife was cooking in the kitchen, with my little child playing upon the floor near her. In lifting a cover from the top of stove, she hit a large lamp on the mantel, containing a quart of 'Astral Oil,' overturning it upon the stove, breaking the lamp, and throwing the contents over the stove, *and into the blazing fire*.

"In an instant, the room was filled with a cloud of disagreeable smoke, but *no injury was done* beyond the loss of the lamp and its contents. Had it been filled with any of the fluids now in use, or even the best kerosene, I do no doubt but I should now be wifeless and childless."

WM. V. HUNTSMAN, of Fall River, Mass., writes: "In one instance, the heads of a family went out, leaving the children alone. Three or four of them, while playing around the table, upset the lamp, which fell upon the floor and broke, throwing the oil over them, and *letting the burning wick down into the Oil*. The children extinguished it without injury. Now they will use no other oil."

Above are a few testimonials. Hundreds of others can be seen at our office. Millions of gallons of PRATT'S ASTRAL OIL have been sold, and it has been used in hundreds of thousands of families, and no accident has ever occurred directly or indirectly, from burning, storing or handling it.

NEW YORK, May 13, 1869.

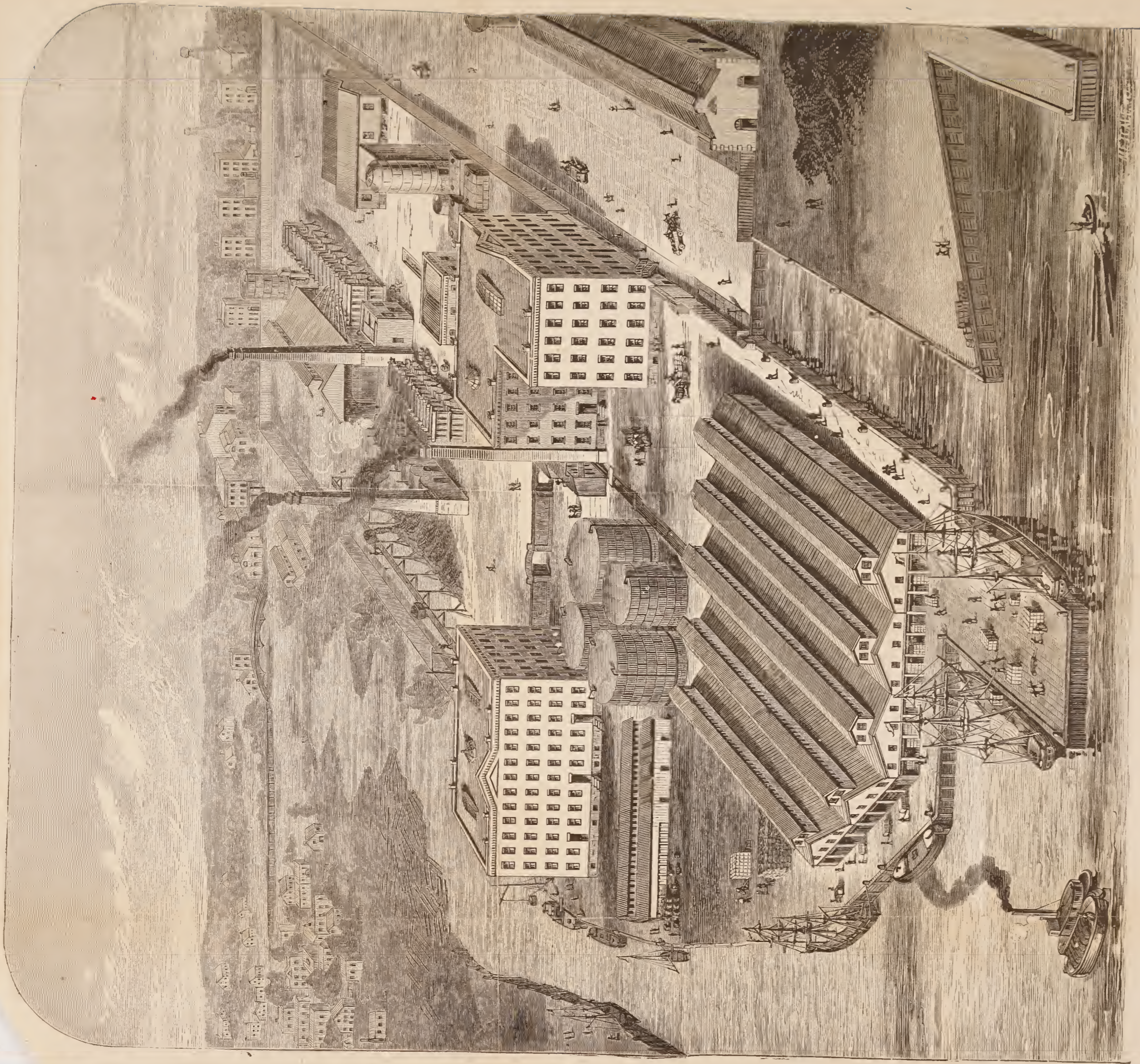
CHAS. PRATT,

DEAR SIR:—The undersigned Officers of Fire Insurance Companies have noticed, with pleasure, your endeavors to introduce a safe and reliable Illuminating Oil, in place of the cheap and lower grades of Kerosene Oil so commonly used. The merits of your "Astral" Oil, which are so generally conceded by scientific men, the press, and the public at large, lead us to hope that your endeavors may be crowned with success, and that consumers will fully protect themselves from FIRE and ACCIDENT, by the use of an oil which is PERFECTLY SAFE.

Such we think the "Astral" Oil to be (standing as it does a test of 145° against 110° of best Kerosene), and we feel that its general introduction, packed in the Guaranty Patent Cans and sealed in the manner which you have adopted, as security against adulteration, WOULD MATERIALLY DIMINISH THE FIRE RISK ON ALL BUILDINGS IN WHICH KEROSENE IS STORED OR USED.

ROBT. D. HART, Pres. Astor Fire Ins. Co.
J. V. HARRIOTT, Pres. Firemen's Ins. Co.
B. S. WALCOTT, Pres. Hanover Fire Ins. Co.
E. J. LOWBER, Pres. Corn Exchange Ins. Co.
GEO. W. SAVAGE, Pres. International Ins. Co.
STEPHEN CROWELL, Pres. Phoenix Ins. Co.
SANFORD COBB, Pres. Eagle Fire Ins. Co.
J. R. ST. JOHN, Pres. Lamar Fire Ins. Co.
SAMUEL E. BELCHY, Pres. Jefferson Fire Ins. Co.
A. WILEY, Jr., Sec. Humboldt Fire Ins. Co.
E. WHITE, Manager, No. British & Mercantile Ins. Co.
HENRY T. DROWNE, Pres. National Fire Ins. Co.
GEO. HODGSDON, Pres. Knickerbocker Fire Ins. Co.
W. P. PALMER, Pres. Manhattan Fire Ins. Co.
W. L. CORTELYON, Ass't Sec. N. Y. Bowery Fire Ins. Co.
E. T. BACKHOUSE, Pres. Kings County Fire Ins. Co.
W. ELLSWORTH, Pres. Montauk Fire Ins. Co.
W. F. LEGGETT, Sec. Stuyvesant Fire Ins. Co.
HORATIO DORR, Sec. Atlantic Fire Ins. Co.
LEONARD KIRBY, Pres. Globe Fire Ins. Co.
A. C. MILNE, Ass't Sec. People's Fire Ins. Co.
WALTER K. PAYE, Sec. Guardian Fire Ins. Co.
I. D. COLE, Jr., Sec. New Amsterdam Fire Ins. Co.
A. L. SOULARD, Sec. Sterling Fire Ins. Co.
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And many others.

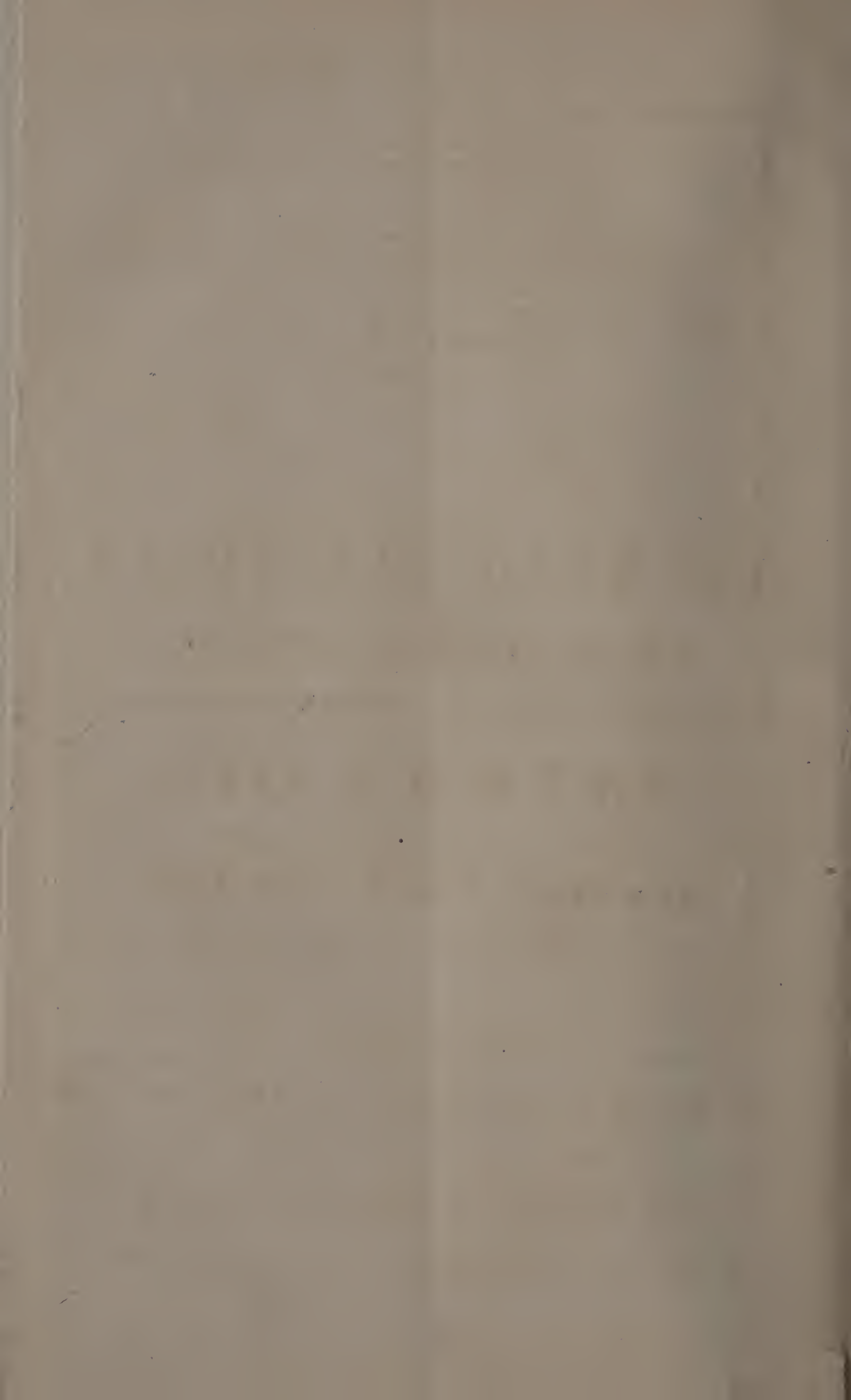


PRATT'S ASTRAL OIL WORKS,
BROOKLYN, E. D.,
OIL HOUSE OF CHARLES PRATT,

Office, 108 Fulton Street,

New York.

[Established 1770.]



REPORT

PETROLEUM

ILLUMINATOR

AND THE ADVANTAGES AND PERILS WHICH ATTEND THE USE; WITH
SPECIAL REFERENCE TO THE PREVENTION OF THE TRAFFIC
IN DANGEROUS KEROSENE AND NAPHTHA.

C. F. CHANDLER, PH. D.,

Professor of Analytical and Applied Chemistry, School of Mines, Columbia College.

EXTRACT FROM THE ANNUAL REPORT OF THE BOARD OF HEALTH OF THE HEALTH DEPARTMENT OF
THE CITY OF NEW YORK FOR 1870.

NEW YORK:

THE NEW YORK PRINTING COMPANY,

Nos. 81, 83, & 85 CENTRE STREET.

1871.

PRATT'S ASTRAL OIL.

RECOMMENDED BY THE PRESS,

THE LEADING SCIENTIFIC MEN,

AND ENDORSED BY

The Insurance Companies

AND

HUNDREDS OF THOUSANDS OF FAMILIES,

WHO USE IT.



*View of 100 cases Pratt's Astral Oil, after destruction by Fire of Mess.
Stoddard & Burton's Warehouse, Troy, N. Y., Aug. 20th, 1870.*

READ THE FOLLOWING LETTER :

TROY, N. Y. August 22d, 1870.

MR. CHARLES PRATT,

SIR: We have a short story to tell you about "Astral Oil." In the rear of our store, about three years since, we had a warehouse built, with Gravel roof, for storing Paints, Oils, Glass, Acids, Kerosene Oil, &c., &c. Unfortunately for us, it was set on fire early Saturday morning and entirely consumed. The 100 cases Astral Oil bought from you a few days since were in the warehouse, and strange to say, came out of the fire almost unharmed; they were piled up two and three tiers high; the wood cases, of course, were burned off, and several of the top cans unsoldered on top; but there was *no explosion*, and the Oil in the open cans did *not burn*. The rear of our store was very badly damaged. The "Astral Oil" was within six or eight feet from the store, and, of course, in a hot place. Had the explosion taken place, nothing could have saved the store. We had several barrels of *Kerosene* in the warehouse, which burned lively. To say the least, the Oil has stood a very severe test, and we think it is all you claim it to be. This morning before anything was disturbed, we had a picture taken of the ruins, showing the Oil as it remained after the fire was put out.

Yours respectfully,

STODDARD & BURTON.

NEW YORK, April 17, 1869.

CHARLES PRATT, Esq.,

DEAR SIR:—I am exceedingly pleased that a house of your respectability has furnished the public with an Illuminating Oil WHICH CAN BE RELIED UPON FOR SAFETY. As an officer of an Insurance Company, I am in the way of hearing more frequently than many others of the many accidents to persons and property arising from the use of improperly refined petroleum. The frequent deceptions practised by dealers upon consumers need no longer occur, as your House's reputation is a guarantee that the article you sell will be as represented, and we who burn Kerosene Oil now know where a SAFE ARTICLE can be obtained.

Very respectfully yours,

GEO. W. SAVAGE,

Pres. International Fire Ins. Co., N. Y.



**READ CAREFULLY,
AND NOTE WELL!**

While the Fire Insurance Companies Recommended

ASTRAL OIL

to the Public, on its first introduction, three years ago, they have received their

BENEFIT FROM ITS USE!

For although millions of gallons have been sold, and hundreds of thousands of families have used it, the companies have never been called upon to pay a loss arising from it.

On the other hand, it has been estimated by good authorities that the Insurance Companies of New York have paid, during this period,

SIX MILLION DOLLARS

for losses arising from use of bad Kerosene, Naphtha, Benzine, &c.

OIL HOUSE OF CHARLES PRATT,

108 FULTON STREET,

NEW YORK.

To avoid Adulterations and Imitations, buy
only in sealed cans, and see that the seals are
uncut.

PRATT'S ASTRAL OIL

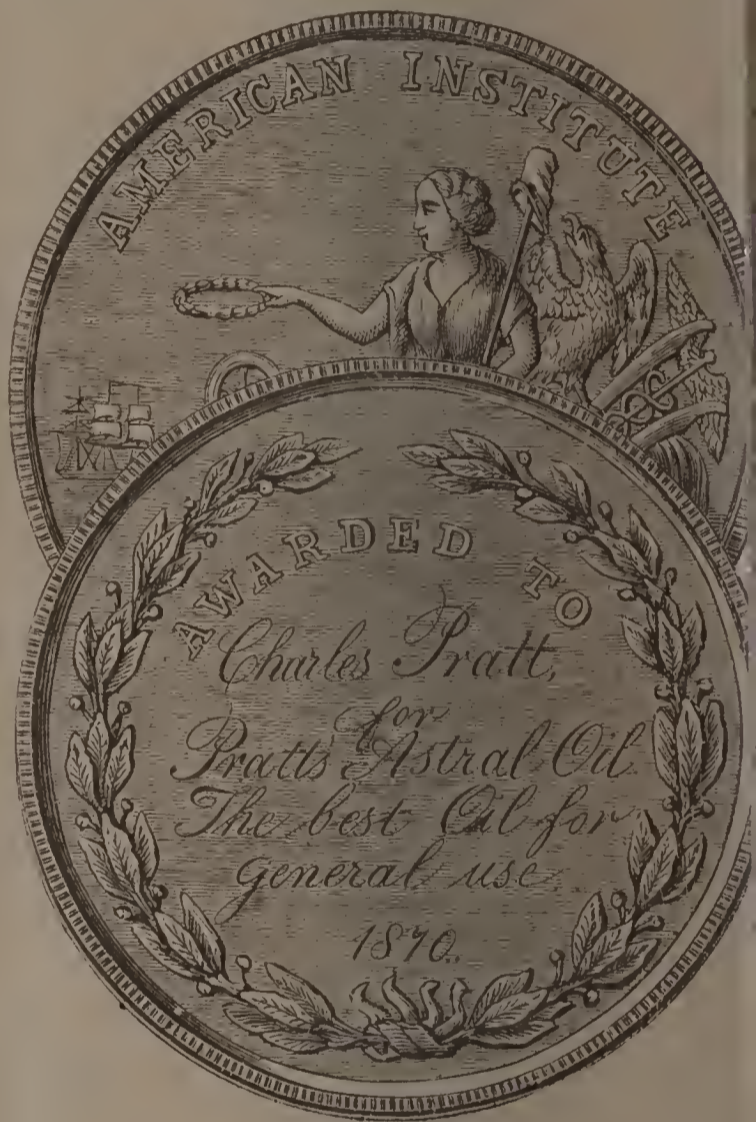
WILL NOT EXPLODE.

FIRST PREMIUM

OVER ALL COMPETITORS.



1869.



1870.

MANUFACTURED SOLELY BY

OIL HOUSE OF CHARLES PRATT,

MANUFACTURERS OF STRICTLY PURE OILS.

[Established, 1770.]

108 FULTON STREET 182 9 NEW YORK.

TO THE INSURANCE FRATERNITY
THROUGHOUT THE UNITED STATES.

The extended use of Petroleum as an illuminator, renders a knowledge of its products of particular importance to Insurance men, especially when the fact is considered that Insurance Companies of New York pay over

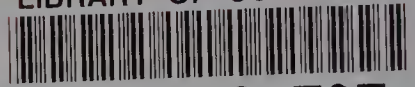
TWO MILLION DOLLARS ANNUALLY

for losses resulting from use of the lighter products of Petroleum, such as Naphtha, Benzine, Gasoline, &c., which are frequently sold under false names.

The accompanying report of Prof. Chandler, to the Department of Health of the City of New York, is deemed a good educator on this point, as presenting facts of vital importance to the Insurance Interests, in not only an exhaustive and able manner, but also in an interesting and readable form.

The facts presented should be known to every Insurance man as a part of an Insurance education, and your careful study of the work is requested.

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